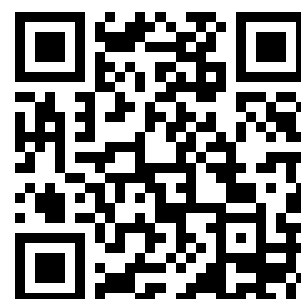

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Accountants —
Auditors —
Systematizers

We are making a specialty of Garage Accounting Systems. We are prepared to make audits, to undertake investigations to prepare statements, to devise and install the kind of accounting system you require.

Our Terms Are Reasonable

We can maintain books at a cost to you of \$10 to \$25 per month. All dealings held in strictest confidence by capable and trustworthy, expert accountants.

Investigate, then let us quote you prices.

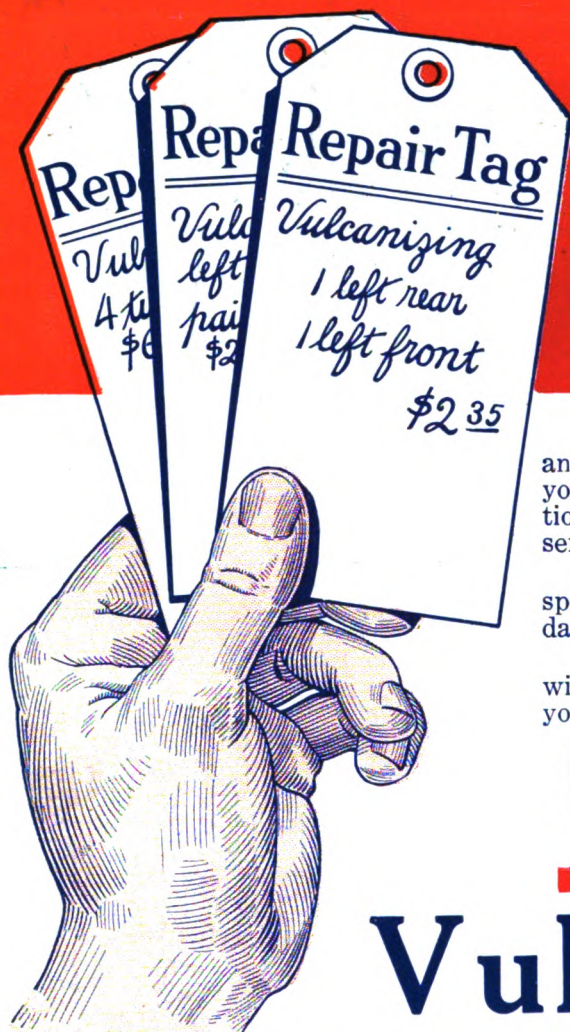
Standard Audit Company

(Not Inc.)

608 So. Dearborn St.

Room 372

Chicago, Illinois



Vulcanizing

—the repair jobs that pay big profits

The garage where every other part of the car is cared for and repaired, is the logical place for Vulcanizing. It gives you the opportunity of increasing your profits without additional expense and gives your patrons the tire repairing service they must have.

Every car owner must have his tires vulcanized. Prospective vulcanizing customers come into your garage every day, so you don't have to solicit outside.

The auto owner when he comes to you for his supplies, will gladly give you his tire repairing jobs if he knows that you can mend his tires.

SHALER

Vulcanizers

The Shaler famous "Wrapped Tread Method," has been used successfully by tire makers for many years. Thousands of Shaler Vulcanizers, both steam and electrically heated, are in daily operation. The great majority of them are being operated by men who have had no previous vulcanizing experience.

Any boy, who can wash a car, can turn out perfect work with a Shaler because the Shaler has

Automatic Temperature Control

This is an exclusive Shaler feature that keeps the temperature of the vulcanizer exactly at the right point without any watching or regulating.

Thus, the vulcanizer can't possibly overheat a tire; the operator can use all his time in preparing repairs because the vulcanizer doesn't need to be watched.

Send the Coupon and get full details and trade discounts on Shaler Vulcanizing Plants.

Mail Coupon for particulars

You can easily increase your daily revenue by repairing tires with a Shaler Vulcanizing Plant. Send coupon at once for full details—the low discount price and our book for garages only—"Common Sense About Tire Repairs."

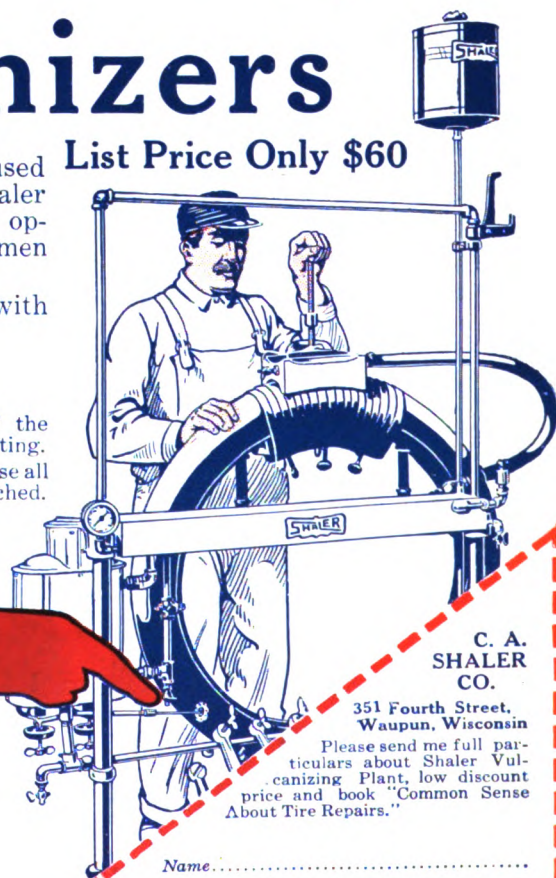
Accessory Dealers More Shaler Vulcanizers are used than all other kinds combined. Sell the best—the one that gives the best results. Write for offer on resale of Shaler Vulcanizers.

C. A. SHALER CO., 351 Fourth St., Waupun, Wis.

The Largest Manufacturers of Vulcanizers in the World

Canadian Distributors: JOHN MILLEN & SONS, Ltd., Toronto, Winnipeg, Montreal, Quebec, Vancouver.

List Price Only \$60



C. A. SHALER CO.

351 Fourth Street, Waupun, Wisconsin

Please send me full particulars about Shaler Vulcanizing Plant, low discount price and book "Common Sense About Tire Repairs."

Name.....

Address.....

GARAGE EFFICIENCY

THE NATIONAL GARAGE MONTHLY

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Look Well Into Burd Rings

SPEED 102.25 MILES PER HOUR

"The Surprise of the Day," said the reporters when the Packard Twin Six, equipped with 36 Burd High Compression Piston Rings, circled the Sheepshead Bay track at the rate of 102.25 miles per hour.

No stock car driven by a non-professional had ever traveled that fast.

Surely such an achievement naturally would occasion surprise.

Yet when you stop to consider the construction of the Burd Ring, and come to realize how it conserves every atom of power generated by the motor, you may well appreciate why the engineering department of the Packard Motor Car Company adopted Burd Rings as standard equipment.

The Metallic Guard effectually closes the ring opening against escaping gas and maintains the maximum compression the designer intended the motor should have.

These two elements mean more power, and power is, of course, the first essential necessary to speed.

You will do well to look well into Burd Rings when overhauling your own or your customer's car.



BRANCHES AND SALES OFFICES

Buffalo, N. Y.	810 Iroquois Bldg.
Chicago Branch	1427 Michigan Ave.
Dallas, Texas	819 Wilson Bldg.
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Seattle, Washington	538 Central Bldg.

BURD HIGH COMPRESSION RING CO., Rockford, Illinois

Please Mention GARAGE EFFICIENCY, when Writing to Advertisers.

The A B C of AIR-IN-AL

WHAT IT IS—WHAT IT DOES

AIR-IN-AL is a liquid compound of about the consistency of milk that will not injure rubber. It never solidifies and is not affected by extremes of heat or cold.

AIR-IN-AL is one item of supply every garage owner and car dealer should carry in stock.

AIR-IN-AL is the preparation that seals punctures and Porous Tubes, doing all and more than is claimed.



When you puncture a tire treated with AIR-IN-AL what happens? **Nothing.**

AIR-IN-AL in the inner tube instantly closes the puncture and the driver of a car will not know there has been one until a close examination is made of the tire.

Wonderful, if true, isn't it? Well, it's true, and here is the proof.

This wonderful compound is a semi-liquid substance that fills at once any ordinary hole made in a tire by nails, tacks, wire, etc., and seals Porous Tubes instantly. A driver may leave on a hundred-mile journey over rough roads and return with every pound of air the tubes contained when the car started, no matter how many nails, tacks and other tire destroyers are picked up en route. If you have a tire that will not remain hard over night on account of tube being porous, install AIR-IN-AL and stop your worry.

AIR-IN-AL means air in the tubes all the time, regardless of punctures.

Attention Garage Men and Dealers AIR-IN-AL retails at \$1.25 a can, and four cans, each containing a pint and a half of the liquid, are sufficient to treat four tires. There is a profit in AIR-IN-AL that is fair to the dealer selling it. **Write today for price list.**

SPECIAL NOTICE Officers of several of the garage owners' associations are testing AIR-IN-AL and finding it O. K., just as represented. In later issues we will give the results of these tests.

Become an AIR-IN-AL dealer and add hundreds of dollars to your annual income.

S. W. GRANBERY, 2129 So. Michigan Ave., Chicago, Ill.

HERE IS THE PROOF

Photographs of the originals of all of the letters here appearing and many others of similar strain are on file and will be sent, on application, to anyone interested.

LOS ANGELES, Nov. 8, 1915.—To Whom It May Concern: I have now had "Air-in-all" installed in my car for about three months, during which time I feel assured I would have had two punctures had it not been for "Air-in-all." The first time, making a detour, I ran over three strands of barbed wire fence with all four wheels. The second time, I ran into a lot of glass on the road and plainly heard the hiss of the escaping air, but remembering "Air-in-all" was in my tires kept on going, and while a sufficient amount of air escaped to make the tire slightly soft, it sealed the broad cut made clear through the casing and the tube by a sharp piece of glass.

I ran on this tire several days before blowing it up with air.

From my experience with "Air-in-all" I do not believe it is in the slightest injurious to rubber. I know it will seal punctures that will stay sealed, and I believe it will give double life to an old porous tube. Therefore, I feel fully warranted in endorsing all that Mr. Bassett claims for "Air-in-all."

Yours very truly,
M. S. BUCKLEY.

80 Broadway.

NEW YORK, June 18, 1915.—I take pleasure in advising you that I have used a

set of your Air-In-All to very great advantage. I find that it not only makes porous tubes air tight and closes up tack and nail punctures, but that it effects a great saving on new tires as well as it keeps the original pressure intact, thereby saving the enormous depreciation resulting from weakened fabric and heated rubber from running on soft tires.

Yours very truly,

GORDON GRAND,
Of Manley & Grand, Attorneys.

BATTLE CREEK, MICH., May 9, 1915.—Wednesday, May 5, we filled a tire on a Welsh car weighing 4,700 pounds. The

tire and tube is two years old and would not stay inflated over night. This car is used for towing and other heavy work around the garage. We have never touched the tire since and is as hard as the day we put Air-In-All in. We have stocked it and fully recommend it.

AMERICAN MOTOR CO.,
Geo. H. Welhams.

DALLAS, TEX., Sept. 2, 1915.—We herewith enclose our order No. 3638 for twelve more sets of "Air-In-All."

We are pleased to know that they have at last found a satisfactory remedy for punctures. Wish to state that we installed "Air-In-All" in all of our cars on April 1 and with the exception of one tire we have not had a bit of trouble. On replacing this tire we found same to contain 27 punctures which had been sealed by your preparation. We have a tire running on one car now that has had seven punctures to our knowledge, and in one instance this car was backed over an oil can, the oil can penetrating the tire the full length of the stem, and after pulling the oil can out of the tire we were not obliged to add any more air, as the puncture was permanently sealed.

Wishing you every success in the world, we are,

Yours very truly,
DALLAS WASTE MILLS.
C. H. Thomas, Mgr.

BATTLE CREEK, MICH., June 7, 1915.—Just a statement in regard to your Air-In-All. Have just returned from a 1,200-mile trip to St. Louis, Mo., and wish to state that the Air-In-All proved very satisfactory. The only trouble experienced was a pinched tube which was vulcanized with the Air-in-All in tube and gave no more trouble. D. A. DAVIS,
Secy. B. P. O. E. 131.

Firestone Tires
JOSEPH J. O'BRIEN TELEPHONE COLUMBUS 5481 EDWARD J. O'BRIEN

PROGRESSIVE TIRE & REPAIR CO.

331 WEST 57TH ST.
NEW YORK CITY, N. Y. Nov. 26, 1915.

Woodbridge Chemical Company, Inc.,
Broadway at 58th St.,
New York City.

Gentlemen:

Referring to your recent communication, we would say that your semi-liquid, AIR-IN-ALL, does not effect our adjustment policy in any way whatsoever.

Yours very truly,

Progressive Tire & Repair Co.

JJO'B/G. Per *J. J. O'Brien*

THE COLOSSUS OF ROADS

For Further Information Write S. W. GRANBERY, 2129 So. Michigan Ave., [Chicago, Ill.]

60,000 Miles Without Depreciation

The Record of the 3-X Spark Plug



$\frac{1}{4}$ " Std.

More power with less consumption of gas, greater flexibility, easier starting, closer timing, a quicker "pickup", are some of the advantages 3-X assure

In the production of the 3-X Spark Plug are combined the most thorough knowledge of the work a spark plug must do, the very highest quality of material and the very highest type of workmanship.

OUR GUARANTEE—3-X Plugs are the product of the best material and workmanship obtainable and are fully guaranteed. We will replace any part, including the porcelain, if mailed to our office, 2129 Michigan Avenue, Chicago, with ten cents (10c) for return postage.

You can guarantee the complete elimination of spark plug trouble by the use of the 3-X. Their use, also, tends to minimize all manner of engine troubles.



$\frac{1}{2}$ " SAE

Specials for certain types of motors will be supplied in any size, thread or extension and specifically adapted to do the work for which it is designed.

3-X Spark Plugs deliver what the driver demands:

A strong, hot spark with unvarying regularity. They will start a car in the coldest weather.

Backed by our guarantee a stock of 3-X plugs are an asset for any garage man or dealer. 3-X plugs are a good thing, but don't plunge. All we ask is a trial order. Order the sizes and kinds your trade demands in dozen lots. We will get your future business and you will get the spark plug trade of the car owners of your section.



Metric

If ever in doubt as to the exact type required send name and model of the car to be equipped and the size and type adapted to that motor will be furnished.

Write today for complete information and for prices. Arrangements can be made for exclusive territory if you get in touch with us immediately.

3-X SPARK PLUG COMPANY,

2129 S. Michigan Ave.

CHICAGO, ILLINOIS

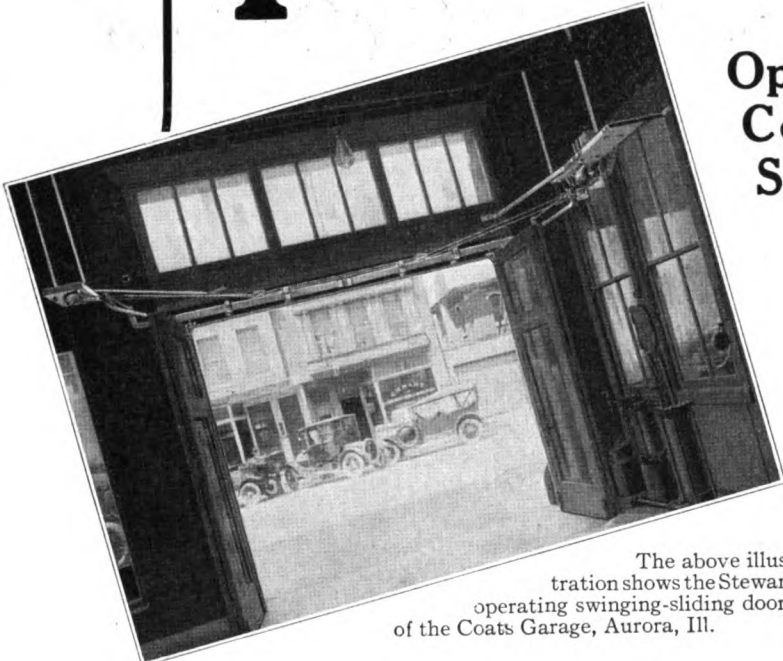


$\frac{1}{4}$ " Extension

FORD, OVERLAND, REO 3-X Spark Plugs make Ford cars 100 per cent efficient. Strict economy impels your customers to demand 3-X with the guarantee that goes with them.

Push the Button

Open Come Your Doors
Costs 5 Cents a Day
Saves **\$35** Monthly



The above illustration shows the Stewart operating swinging-sliding doors of the Coats Garage, Aurora, Ill.



The above illustration shows the Stewart operating swinging, arch-top doors of the Peoples Garage and Auto Livery Co., 347 E. 55th Street, Chicago, Ill.

The Mechanical Products Co.

2016 Peoples Gas Bldg., Chicago, Ill.

To open or close the doors you simply press a button. That's all. Works automatically. Stops itself when doors are open—or when they are closed. Push buttons—as many as you like and located in as many places in your establishment as desired. No more bother running to open doors—no waiting for doors to be opened. No more loss of mechanic's time. Takes place of a man at \$2.00 a day and costs to operate but 5 cents a day.

Stewart Electric Door Opener & Closer

Is actuated by an electric motor. Is simple. Is made of unbreakable steel parts. Installed on a level with tops of doors—thus takes up no room—and is out of the way. *We Guarantee It For One Year* and will replace—at our own expense—any part, or parts, that break or fail to work.

Send The Coupon and get information by Return Mail!

Information Wanted

Mechanical Products Co.
2016 Peoples Gas Bldg.
Chicago, Ill.

Gentlemen:—Kindly send me information concerning the Stewart Electric Door Opener & Closer. It is clearly understood that I am to be under no obligations to purchase.

Name

Street

City State

Please Mention GARAGE EFFICIENCY, when Writing to Advertisers.

"Next best" to _____ _____ "SILVERTOWN Tires"



*You will know them by their
 stylish*

Black Treads

WE can't produce "Silvertown" Tires as fast as the Market now calls for them.

This because the intricate Machinery required in the spinning of the two Cable-Cords—their percolation under enormous pressure with Hyper-Rubber,—the cross laying of the two layers of Cable-Cord over each other so as to secure precisely the *same tension* on each strand—all the special Machinery for this had not only to be *made*, but *invented*.

Owing to demands upon the facilities of every big Machine Shop in America, at present, for War-Materials, we are unable yet to have these newly invented Silvertown Machines built in *large enough* quantities to make more than one "Silvertown" Tire for every four the Country now clamors for.

THIS Advt. is therefore chiefly intended as an *Explanation* to Consumers and Dealers, who want "Silvertowns" and can't yet obtain them.

It is also intended to *help* the situation by putting out a new Goodrich Fabric Tire with the same BLACK Rubber Tread as has distinguished Silvertown Tires.

The *appearance* is almost identical with that of the "ARISTOCRATIC" Silvertowns, and the material used in the Treads, is practically the same.

No increase in the price of Goodrich Tires will be made because of this smart Black Tread distinctiveness, and "Silvertown" expression.

This, in accord with the fixed policy of the B. F. Goodrich Co. (which *pioneered* practically every big improvement in Rubber or Tire Manufacture during the past decade)—viz.: to give *Maximum Value* to Consumers first of all, and then trust to resulting *Volume* for satisfactory dividends.

IT is now more than 20 years since the B. F. Goodrich Co. brought out the first "Cord Tire" (for Bicycles) viz.:—the Palmer Cord Tire.

And it is many years since it first brought out the original Silvertown Cord Tires,—(the only genuine "Cord" Automobile Tire).

That it practically *withdrew the first genuine* "Cord" Auto Tire from the Market, until the "Silvertown" PRINCIPLE had been brought up to the Goodrich STANDARD of Mileage, Safety, and Value to Consumers, is a matter which concerns your CONFIDENCE in all Goodrich Products and Promises.

Please note that Goodrich Tires henceforth—the Fabric construction as well as the Cord "Silvertowns"—will have handsome BLACK Treads.

THE B. F. GOODRICH CO.
 Akron, O.

GOODRICH FAIR-LISTED TIRES

Garage Reasoning

Car owners who want to repair their own tires will do it whether you sell them the necessary repair outfits or

not. They do it for two reasons—economy or a liking to "fuss" with their cars. You can cash in on them—sell them

TIRE-DOH

TIRE-DOH gives you a good profit, backs up the statements you make for it, makes repeat customers, sells with little effort from you because it is the standard and most widely advertised repair outfit on the market. ¶ There's an opportunity for you to get all the business in repair outfits that is now going out of town. Handle **TIRE-DOH**. Big, attractive advertising keeps up a constant new demand for **TIRE-DOH**. **TIRE-DOH** performance makes permanent customers of all who buy. ¶ **TIRE-DOH** repairs the smallest pin point punctures or the longest

NEW SIZES

Complete Outfits,

Big Size \$1.00

Junior Size 50c

inner tube tears. Seals cuts and holes in casings before they develop into sand blisters. **TIRE-DOH** repairs are permanent and as strong as the rest of the tire. No heat or tools required.



NEW SIZES

Tire - Doh (alone)

2 oz. can 50c

Tire-Doh Cement

(alone)

4 oz. can 25c

The Mightiest Guarantee of Tire-Doh Efficiency

is that the following jobbers sell and recommend

TIRE-DOH

MINNESOTA

Marshall-Wells Hdwe. Co., Duluth.
Kelley-How-Thomson Co., Duluth.
Empire Tire & Rubber Co., Inc., Minneapolis.
Hudson & Thurber, Minneapolis.
Janney, Semple Hill & Co., Minneapolis.
W. S. Nott, Minneapolis.
Plant Rubber Co., Minneapolis.
Reinhard Bros. Co., Minneapolis.
Warner Hdwe. Co., Minneapolis.
Western Motor Supply Co., Minneapolis.
Williams Hdwe. Co., Minneapolis.
Electric Mfg. Co., St. Paul.
Farwell, Ozmun, Kirk & Co., St. Paul.
Nicols, Dean & Gregg, St. Paul.
Northwestern Electric Equipment Co., St. Paul.
C. J. Smith & Co., St. Paul.
G. Sommers & Co., St. Paul.

MISSOURI

Equipment Co., Kansas City.
Gustin-Bacon Mfg. Co., Kansas City.
Kansas City Auto Supply Co., Kansas City.
Motor & Machinists Supply Co., Kansas City.
Richards & Conover Hdwe. Co., Kansas City.
Ross-Frazier Iron Co., St. Joseph.
Wyeth Hdwe. & Mfg. Co., St. Joseph.
Fred Campbell, St. Louis.
Campbell Iron Co., St. Louis.
Geller, Ward & Hasner Hdwe. Co., St. Louis.
Shapleigh Hdwe. Co., St. Louis.
Simmons Hdwe. Co., St. Louis.
Bonniwell-Calvin Iron Co., Kansas City.

MONTANA

Butte Elec. Supply Co., Butte.
Branch of Capital Elec. Co., Salt Lake City.
Missoula Elec. Sup. Co., Missoula.
Branch of Capital Elec. Co., Salt Lake City.
Great Falls Elec. Supply Co., Great Falls.
Branch of Capital Elec. Co., Salt Lake City.
Helena Elec. Co., Helena.
Branch of Capital Elec. Co., Salt Lake City.
Haskell Auto & Supply Co., Glendive.
Billings Elect. Supply Co., Billings.
Branch Capital Elec. Co., Salt Lake City.

NEBRASKA

Nebraska Buick Auto Co., Lincoln.
Linsinger Implement Co., Omaha.
Omaha Rubber Co., Omaha.
Powell Supply Co., Omaha.
Wright & Wilhelm Co., Omaha.

NEW JERSEY

Economy Auto Supply Co., Newark.
H-H-H Tire & Mfg. Co., Newark.

NEW YORK

Post & Lester Co., Albany.
Albany Hdwe. & Iron Co., Albany.
R. W. Whipple, Binghamton.

Martin-Evans Co., Brooklyn.
F. A. M. Auto Supply Co., Buffalo.
Rogers & Rogers, Buffalo.
Barker, Rose & Clinton Co., Elmira.
Davis-Brown Electric Co., Ithaca.
The Auto Supply Co., New York.
R. K. Carter & Co., New York.
DeVere & Strang, New York.
Motor Car Equipment Co., New York.
Richards Auto Supply Co., New York.
Weaver-Ebling Auto Co., New York.
Whittemore-Sim Co., New York.
E. J. Willis Co., New York.
Rochester Auto Supply Co., Rochester.
Jay A. Rickard Co., Schenectady.
H. A. McKee & Co., Schuylerville.
The Olmstead Co., Syracuse.
Syracuse Rubber Co., Syracuse.
U. S. Rubber Co., Syracuse.
Utica Cycle Co., Utica.

NORTH CAROLINA

Cheml Company, Charlotte.
NORTH DAKOTA
J. D. Grant, Fargo.
Northern Automobile Co., Jamestown.

OHIO

Herman Bumiller Co., Cincinnati.
C. & D. Auto Supply Co., Cincinnati.
The Ohio Rubber Co., Cincinnati.
Oskamp Auto Supply Co., Cincinnati.
The Remellin Co., Cincinnati.
G. M. Toewater & Co., Cincinnati.
The W. Bingham Co., Cleveland.
Collister & Sayle Co., Cleveland.
The Fen-Far Co., Cleveland.
Justus & Parker Co., Columbus.
Harry E. Smith, Columbus.
Wagner Hdwe. Co., Mansfield.
Toledo Rubber Co., Toledo.
Union Supply Co., Toledo.

OREGON

Chanslor & Lyon Co., Portland.

PENNSYLVANIA

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Jacob Roth, Erie.
Johnstown Auto Co., Johnstown.
General Auto Supply Co., Lancaster.
Gaul, Derr & Shearer Co., Philadelphia.
Manufacturers Supplies Co., Philadelphia.
J. H. McCullough & Son, Philadelphia.

Geo. W. Nock Co., Philadelphia.
Rogers & Miller, Philadelphia.
Supplee-Biddle Hdwe. Co., Philadelphia.
Automobile Accessories Co., Pittsburgh.
Dyke Motor Supply Co., Pittsburgh.
Jackson Motor Supply Co., Pittsburgh.
Pittsburgh Auto Equipment Co., Pittsburgh.
Pittsburgh Rubber Co., Pittsburgh.
Jos. Woodwell Co., Pittsburgh.
Keyser Fry, Reading.
General Auto Supply Co., Reading.
E. S. Youse Co., Reading.
Lackawanna Auto Co., Scranton.
Chas. B. Scott Co., Scranton.

RHODE ISLAND

Waite Auto Supply Co., Providence.
Post & Lester Co., Providence.

SOUTH CAROLINA

C. D. Franke & Co., Charleston.

SOUTH DAKOTA

H. F. Brownell Co., Sioux Falls.
Dakota Iron Store, Sioux Falls.

TENNESSEE

Southern Auto Supply Co., Chattanooga.
Ozburn Auto Supply Co., Memphis.
W. G. Hirsig Co., Nashville.

TEXAS

Peden Iron & Steel Co., Houston.
Krakauer, Zork & Moyes, El Paso.
Western Motor Supply Co., El Paso.
Electric Appliance Co., Dallas.
Jos. F. Mayer Co., Houston.

UTAH

Capital Electric Co., Salt Lake City.

Branches

Salt Lake Elec. Supply Co., Salt Lake City.
Ogden Elec. Supply Co., Ogden.
Price Elec. Supply Co., Price.
Provo Elec. Supply Co., Provo.
Cocae Valley Elec. Co., Logan.

VIRGINIA

J. P. Gayle Supply Co., Newport News.
Talman Auto Supply Co., Richmond.
Chemi Co., Richmond.
Virginia Auto Supply Co., Richmond.

WASHINGTON

Chanslor & Lyon Co., Seattle.
Chanslor & Lyon Co., Spokane.
Child, Day & Churchill, Spokane.

WISCONSIN

W. H. Hobbs Supply Co., Eau Claire.
L. F. Schoelkopf, Madison.
Auto Supply Co., Milwaukee.
Philip Gross Hdwe. Co., Milwaukee.
John Pritzlaff Hdwe. Co., Milwaukee.
Shadbolt & Boyd Iron Co., Milwaukee.

Names of other Jobbers in Our Advertisement in this Magazine last month

ATLAS AUTO SUPPLY COMPANY, 671 West Austin Avenue CHICAGO

Please Mention GARAGE EFFICIENCY, when Writing to Advertisers.

RAYFIELD

CARBURETORS

Sales of Rayfield carburetors the past year were more than twice the high record of 1914.

For 1916, sales over six times as large as in 1914 are already assured.

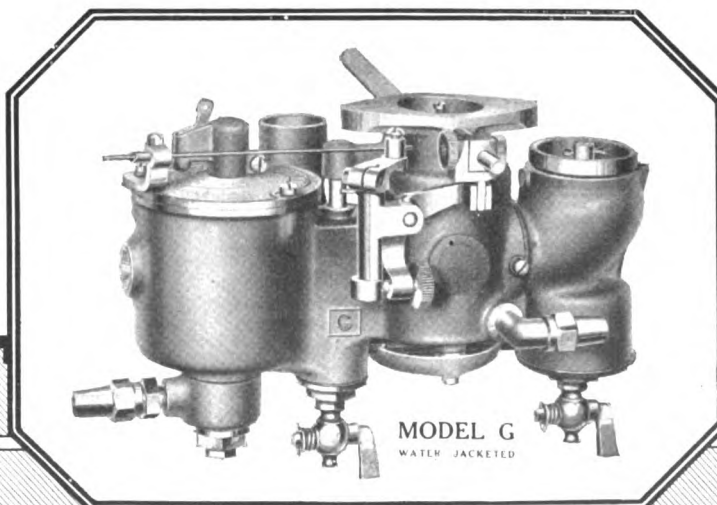
Rayfield supremacy has been won by merit alone; the quality is higher than the price.

*Meet us at the Chicago Show,
Coliseum Gallery — Space 36*

FINDEISEN & KROPF MFG. CO.

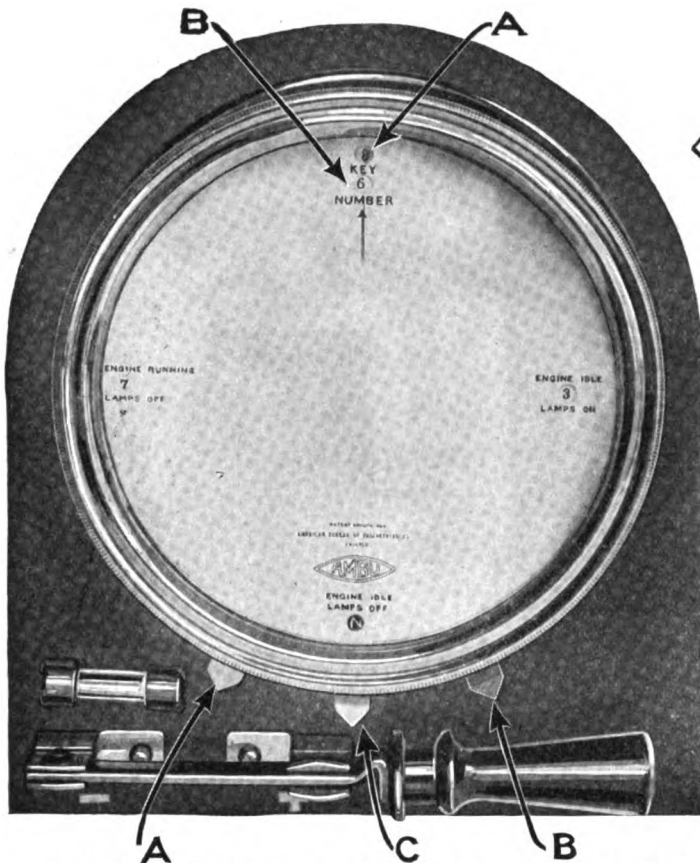
2135 Rockwell Street, CHICAGO

BRANCHES: { 1140 Michigan Ave. 1902 Broadway 1214 Woodward Ave.
CHICAGO NEW YORK DETROIT



MODEL G
WATER JACKETED

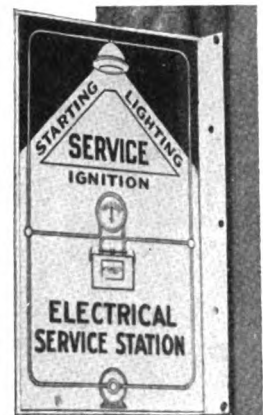
Please Mention GARAGE EFFICIENCY, when Writing to Advertisers.



Electric Trouble Shooter

Detects—locates, accurately and quickly—any trouble in any American-made Starting and Lighting System used as standard on any American-made car.

Autolite, Delco, Gray & Davis, Bijur and Rushmore, Dyneto and Entz, North East and U. S. L., Remy, Westinghouse, Splitdorf, and Aplco, Adlake, Deaco, Disco, Esterline, National, Simms-Huff, Wagner and Ward Leonard, Allis-Chalmers, Bosch, Jesco, Leece-Neville.



The Starting, Lighting, Ignition Service Sign

AMBU Tells How to Correct It

AMBU makes electrical repairing as simple as A. B. C. Nothing that is difficult to understand is embodied in its design or principle. After the dial indicates location of the trouble, you refer to the handily indexed charts and diagrams which give you a complete and thorough working knowledge on how to repair the trouble. And without a minute's delay you are enabled to make the proper repairs on the starting and lighting system under test.

With AMBU and AMBU Service You Can Be the Electrical Engineer of Your Community

Get the edge on your competitor by getting your AMBU outfit *first*. The motorists of your neighborhood will recognize in you an authority on electrical work of automobiles, and AMBU Trouble Shooter will enable you to correct the troubles on any make of American car quickly, accurately, and at a *tremendous profit!*

AMBU SERVICE

AMBU Service is really a complete education in the application, details and workings of the various types of starting and lighting systems as installed in the various makes of motor cars.

AMBU Service consists of AMBU wiring diagrams—showing the exact layout of every electrical system as applied to automobiles.

AMBU Repair Charts—giving concise and practical working information and complete instructions on how to make repairs quickly and positively.

AMBU Service Bulletins keep you posted on all changes, additions and improvements which may be made in the various systems.

AMBU Engineering Advice—to help you out of any unusual difficulties.

AMBU Instruction Book—compiled by experts—gives you a complete working knowledge of the various makes and types of electrical starting, lighting and ignition systems.

The complete AMBU Service contains information impossible for you to obtain in any other way—classified, systematized, readily accessible, and filed in a handsome, substantial metal case with lock—a compact authoritative Service.

The possession of AMBU will benefit you to the extent of hundreds of dollars. It saves hours of time. Makes an expert of you—it brings you hundreds of dollars of extra repair work because you know how to do the work.

READ WHAT C. J. HENDRICKS SAYS:

Speedometer Supply & Service Station
3941 Washington Blvd., Chicago. December 10, 1915.

The American Bureau of Engineering, Chicago, Illinois.
Gentlemen:—I want to tell you of the really remarkable success I have had with your trouble shooter. It really looked improbable to me for this instrument and system to accomplish the work your representative told me it would until I had tried it in actual operation in my own hands. I have had some difficult jobs that otherwise I would have had to turn over to the equipments service station, and I used to pride myself on my knowledge of electrical equipments. I know I have lost several good customers on account of my taking too long and then finally find out that it was some small thing that, if I had known

Hundreds of repair and garage men are now using AMBU. If you are not—fill in the convenient coupon today for detail information regarding this remarkable instrument and service.

AMERICAN BUREAU OF ENGINEERING
1018-38 S. Wabash Avenue Automobile Dept. CHICAGO, ILL.

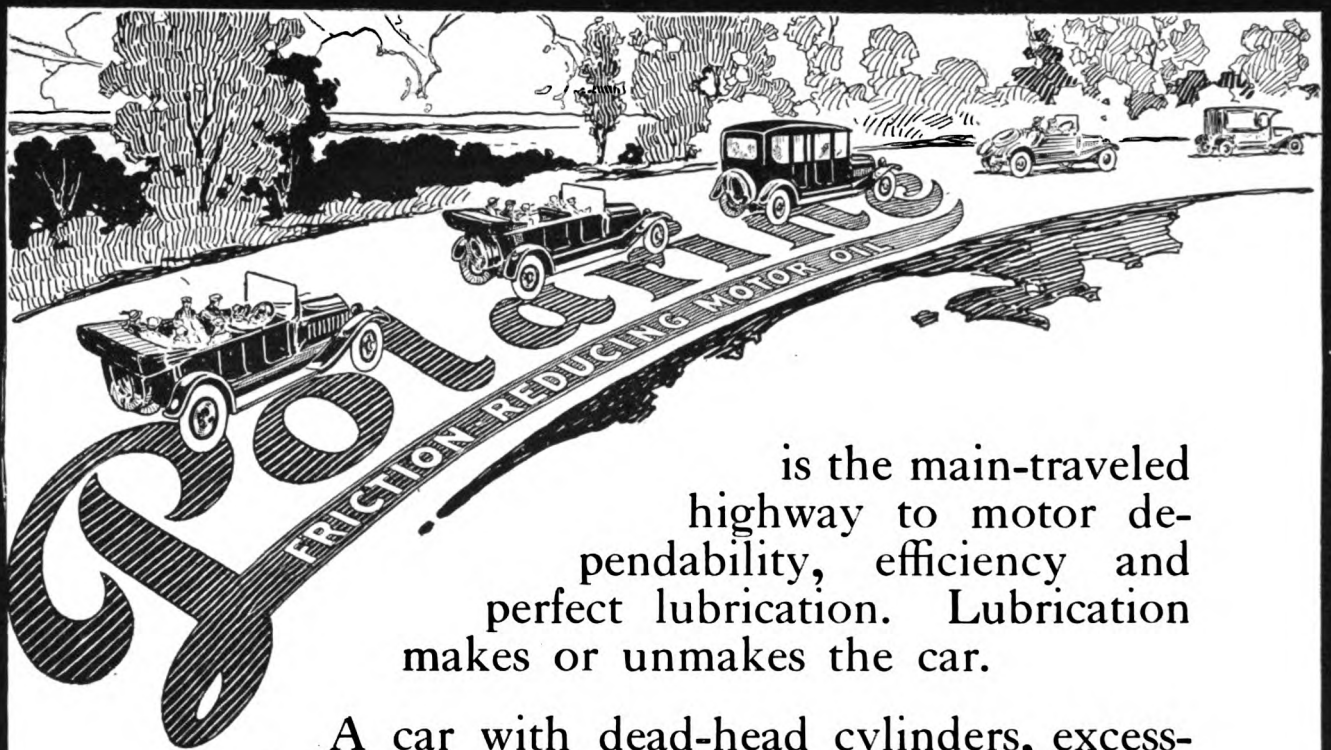
right where to go first. I could have fixed in a short time. The beauty of your instrument is that it automatically tells me right where to go first. I am advertising it now and gradually getting my lost trade back and lots of new customers. I am more than making it pay for itself and I now feel that the price is not high considering what it does. There must have been an awful lot of work necessary to perfect it.

I have just finished a difficult job and my enthusiasm in fixing it in so short a time prompted me to sit right down and write you about it. Yours truly,

(Signed) C. J. Hendricks.

COUPON TEAR OFF AND MAIL TODAY
American Bureau of Engineering, Automobile Dept.
1018-38 Wabash Ave., Chicago, Ill.
Gentlemen:—I am interested in AMBU Trouble Shooter as advertised in Garage Efficiency. Kindly send me complete details, prices, etc., of your AMBU Service.
Name.....
Address.....
City.....
State.....

Please Mention GARAGE EFFICIENCY, when Writing to Advertisers.



is the main-traveled highway to motor dependability, efficiency and perfect lubrication. Lubrication makes or unmakes the car.

A car with dead-head cylinders, excessive carbon or jerky power is as unreliable as a balky horse.

Dependability is the chief requisite of a motor.

Polarine flows freely at zero and maintains the correct lubricating body at any motor speed or temperature.

Polarine is produced scientifically and is of proven efficiency as may be attested by approximately 450,000 motorists.

Order a half barrel today—it costs less per gallon that way than in smaller quantities.

STANDARD OIL COMPANY
CHICAGO (Indiana) U. S. A.

Use Red Crown Gasoline and get more power, more speed, more miles per gallon

13a

The Exponent of Co-operation

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Volume VI.

CHICAGO, JANUARY, 1916.

Number 1.

Devoted to the Interests of
GARAGE OWNERS
GARAGE OWNERS' ASSOCIATIONS
SUPPLY DEALERS and REPAIR MEN.

FOUNDED BY
THE CHICAGO GARAGE OWNERS'
ASSOCIATION

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THE PRICE OF GASOLINE.

Gasoline prices are going up steadily. The public and the irresponsible portion of the public press attribute the increase to unlawful combinations, urging that gasoline does not charge any more for coming out of the ground now than it did six months ago.

Governing facts are: An increasing demand and decreasing supply, the two irresistible forces that are sending prices higher than they have been for decades.

The only hope for lower prices lies in the discovery of new oil fields and a big increase in the production of crude oil, or, the introduction of competitive fuel at competitive prices. Wood or denatured alcohol or benzol are the most likely substitutes. The use of these fuels will necessitate changes in the present mechanism of the motors.

Gasoline prices will continue to advance so long as the demand increases and the supply diminishes.

1916.

A certain sage old stock raiser marketed his hogs. On his return a neighbor asked him what they weighed. He replied: "They did not weigh as much as I thought they would, and I didn't think they would."

This bright, fresh, unused year may not produce as much for as individually we think it will, but we need not discount the future by now admitting that we don't think it will.

Nothing is nearly so bad as it seems and nothing is quite so perfect as we may be led to believe. In the latter case deductions must be made for breakage, wear, tare, and sometimes there is leakage en route.

This year, 1916, will be very largely what the garage man makes it. It is a period of time to be employed in useful work, nothing more and nothing less.

With the flood of new cars coming into use and with the increased call for service, there is no reason why the garage man cannot get that portion of the business to which he is justly entitled. There seemingly are exceptional cases in which a "lucky" man gets something to which he is not entitled. That is not the rule; and the rule, not the exceptions, governs.

During 1916 there will be more cleaning up around the garages of America than ever before. The dirty garages are going out of commission every day.

There is choice of two things: *Clean up or quit business* and with the alternative in view, even the most careless housekeeper in the business has decided, perhaps grudgingly, to "clean up."

Keeping a place in physical order merely is one instance of the necessity of changing methods to conform to modern ideals. There will be a clean-up in business methods. Accounts will be kept more

accurately, the business will be handled more cleanly and with greater profit to the garage owner. Patrons of garages are demanding superior service. They object to inferior service at any price. They are willing to pay cost, plus a reasonable profit, for work and supplies that please.

OUR VALUE TO YOU.

Of the many million people who annually pay for a trade paper a very small percentage realizes in full on the investment made.

A diminishing few seem to feel they profit by subscribing for a paper and permitting it to remain in its original wrapper. Possibly they are afraid of soiling the pages.

Then comes the larger class that feels it incumbent to open the papers and leaf through them, going methodically from page 1 to back cover, stopping occasionally to make a note or read an article.

The bulk of those who subscribe for trade papers read them thoroughly, being personally interested in and financially affected by the subjects treated. These are the live ones, the subscribers who get back many times the cost of a year's subscription.

Then comes the relatively small class that makes an even greater profit from trade papers. If they do not see what they want they ask for it. They secure information, aid of various kinds and assistance in conducting their business that obtained in other ways and from other sources would cost a great deal of money.

Such subscribers are the life of a publication. They keep the editorial staff on its toes to dig up the information desired. They help out in many ways. They read the advertisements, keeping in touch with all that is new that is of interest. They advertise in case they want to buy or sell something that is difficult to move or to secure.

They get in the game and play it for their own benefit. They help themselves

and at the same time help others.

Used in this way GARAGE EFFICIENCY is of inestimable value to every reader. Are YOU getting full returns on your investment?

BETTER GOVERNMENT.

One subject of the hour is the inauguration of an era when the affairs of the United States shall be conducted on a more business-like basis. The central idea seems to be a desire to eliminate waste and friction, to encourage thrift, to prepare for any eventuality, to conserve by wise use our unmeasured resources and to set in motion the machinery for accomplishing many truly great things.

There exists a demand, also, for greater co-ordination on the part of and between the several branches of government. Back of this plan or idea lies the great fact that government vests in the people. An efficient government administered by an inefficient people is out of the range of possibility.

This great need of the hour must be met by the individuals comprising small groups of associated interests who now are called on to do business with less friction, less waste, at a lower cost and a greater profit to themselves and to those they serve.

The conflicting results, lower prices and greater profits, are within the reach of the garage men and car dealers of America. To bring about this necessary change calls for work of the master business builder, rather for the work of a great number of such builders.

A thorough understanding on the part of garage men of their rights, privileges, duties and functions is necessary to bring about this change. It calls for their remodeling into a better and more efficient type of business men. That is the great work before the garage owners and the car dealers of the country.

Better government must arise from business and permeate the political organizations of the country. Better government in business is absolutely essential to better political government. Notwithstanding that fact this country has legislated against government in business. The idea that business can operate without government is on a par with the assumption that the country can prosper and conduct its affairs in an orderly manner without government.

Garage owners have made a start. The existing organizations of garage interests have secured a hearing on the part of the producer and the consumer of auto cars, auto supplies and auto accessories. These interests are in the initial stages of mobilization. After they have been more thoroughly organized the work before the interests concerned can be taken up and handled with assurance of satisfactory results.

The big problem now is to get the men

interested together on a proper basis and that calls for means of organization, money and men and time and thought, directed and devoted to the purpose of establishing an adequate system of government for the garage interests of America, the most constant and intimate point of contact.

Present conditions at this point of contact are unhealthy. They can be vastly improved and will be as soon as a system

Beware of Auto Gas; It Is Quick and Deadly

Across the first page of the December 25 issue of the Chicago Daily Tribune ran this head in letters an inch and a half high: "AUTOMOBILE GAS KILLS LAWYER."

From several sections of the country come reports of the work of the deadly fumes from the exhaust when the engine is run in a closed room. Eugene B. Humphrey was the victim in the Chicago fatality. He entered his garage, a small building in the rear of his residence, started his engine going and was overcome by the gas.

Dr. John D. Ellis, head of the department of occupational diseases of the Rush Medical College, gave the following review of the deadly effects of the gas:

The thing is new to science in some of its aspects. There have been clinical reports of cases in the east, but there have been no fatal results reported in Chicago. I think there was a case or two last fall. But not fatal ones.

"Petromortis" gives a good significance of the attack. Prominent among its symptoms are coughing spells, irregular respiration, nausea, headache, hallucinations, twitching muscles, a subnormal temperature, and the skin turns blue.

How It May Happen.

Persons who are subject to vertigo may be attacked when in a close, small garage. The danger lies in a failure of certain elements in the gasoline to oxidize. Probably this is benzine. In any event there is a quick suffusion of a very violent gas that renders the victim faint—too faint to reach the air. Thus, if the exhaust of an automobile continues, the result is death.

The gas death has been incorrectly called by various titles. It has been called carbon dioxide and carbon monoxide. Neither of these is correct, for we have not been able to determine the precise element that is the cause of the suffocating fumes. It is only safe to say—as I have—that there is a failure of some element in the gasoline to become oxidized. The result is the deadly gas.

No Chance for Life.

A man who is liable to vertigo would have no chance for his life alone in a small room. He would be almost instantaneously overcome and in this state, with the exhaust operating, he would be asphyxiated.

The cases reported last fall were not fatal and offered little opportunity for study.

of adequate government for the industry has been established. Government in business does not call for actual government of the individual enterprise, but does call for the regulation of the relations between the several branches of the industry.

This work should be undertaken by garage men and paid for by garage men to the end that garage men may profit by the efforts put forth.

The post-mortem showings are those of brain and lung congestion.

It is a subject of which little is known at present owing to the fact that it is so new in science, but it is safe to advise all automobilists to refrain from working over their engines in close quarters.

Iowa Near Fatality.

CALLENDER, IOWA.—C. Van Allen, a garage owner, and his helper, George Barber, were overcome by fumes of an automobile engine. The two men were running the engine of a car in the repair shop when the gas began to take effect. The condition was discovered and a physician called who worked all afternoon to bring the men from under the influence of the gas.

Two Deaths from Gas in New York.

ELMIRA, N. Y.—John Luxford and John Friday, employed at the Kensington garage, near London, were washing a car. They closed the doors of the wash room and started the engine running to heat the room. They were found the following morning, one man sitting in the driver's seat, the other on the running board, both dead.

At the inquest it was stated death was due to carbon monoxide poisoning.

Caution Urged by Detroit Physicians.

DETROIT, MICH.—Keeping garages and repair shops in which automobile motors are kept running well ventilated is recommended by Detroit physicians as the only insurance against asphyxiation by a mysterious agent which has caused two deaths in Detroit recently.

An odorless gas, as yet unnamed by science, issuing from the exhaust of running gasoline engines, renders its victims helpless and then takes their lives, leaving them pink-cheeked as if in perfect health rather than death.

It came to notice in Chicago recently through the death of Eugene M. Humphrey, a lawyer, who was found dead in his garage by the side of his car with the motor running. Detroit authorities say that the name given death in this manner, "petromortis," is a misnomer.

Gasoline at 40 Cents and Possible Substitute Fuels

Since the publication of "An Authoritative Gasoline Review" in the December number of *GARAGE EFFICIENCY* the question of gas supply and prices has been discussed by all the leading daily and auto press. It is now being featured by the daily press and some pretty wild predictions are being made respecting the future of gasoline prices.

In the event the supply should prove as inadequate as now feared, the price of gasoline will be controlled by one factor, and one only; the value or cost of the nearest acceptable substitute, based on its cost per unit of service, or, say on a mileage basis.

Two recent dispatches from New York are of interest to all concerned in the operation of automobiles.

The Future of Gasoline Prices.

NEW YORK, Jan. 11.—"Gasoline prices will continue to advance; it wouldn't be surprising if first grade gasoline was quoted at 40 cents per gallon within a short time," said Harry F. Sinclair, millionaire oil man and baseball magnate, today.

"There is really a scarcity of oil at this time," added Sinclair, "and unless new fields are opened within a year or so there may be an oil famine. The output of all the old fields is decreasing gradually, while the demand for gasoline is increasing every day.

"The Oklahoma oil fields, which are the largest in the world, show an average daily decrease of 250,000 in comparison with the output of a year ago.

"A barrel of oil averages forty-two gallons of oil or twenty-one gallons of gasoline. This means that the average yearly decrease in gasoline production in Oklahoma alone is 1,916,250,000 gallons.

"Other fields have been affected the same way as Oklahoma and I dare say that the average decrease in the gasoline output from all the fields in the United States is close to 3,000,000,000 gallons yearly."

"Has the cost of production increased?" Sinclair was asked.

"Not appreciably," was the answer.

"Why then, should the price be advanced?"

Sinclair laughed and said:

"Oh, well, if you've got something to sell that everybody wants you get the highest price you want for it, don't you? That's the way in the oil business."

Benzol, a Possible Substitute for Gasoline.

NEW YORK, Jan. 9.—The increasing price of gasoline has brought into greater prominence the possibility of using

benzol for automobile fuel instead of gasoline.

In many parts of the city today it was noted that garages displaying on signs outside the price of gasoline had posted a roughly painted numerical—usually 25 cents—over the former price, as if the new price were merely temporary, and other and higher prices might be quoted next day.

In a paper read recently before the Chemists' Club, I. F. Stone, president of the National Aniline and Chemical company, said of benzol:

"With the present immense production of benzol the cost has been reduced until now I believe it can be manufactured and sold at a profit at the proportionate price of gasoline, and that this will be done after the war is over.

"When I say proportionate price, I mean careful experiments for automobile purposes show that benzol has a motive power about 25 per cent greater than gasoline; it consequently would have 25 per cent advantage at the same price, so that even with benzol 5 per cent higher in cost it would still be money value. But I really believe that it could be actually produced now and sold at the same price as gasoline if it were necessary to do so."

It was pointed out that before the war benzol, a byproduct of steel making, was not generally recovered by manufacturers, whereas of late the production of benzol has been increased, owing to the shutting off of the German source, until it now amounts to about 15,000,000 gallons, although before the war it was only about 3,000,000 gallons.

Current Literature

On Repairing Automobiles.

A fair idea of some of the things a repair man should know is given in the 1,060 pages of text and the thousand or more illustrations between the covers of "Automobile Repairing Made Easy," by Victor W. Page, M. E.

It is not assumed that all the information a repair man should possess is contained in this book, but the repair man who has assimilated the information it contains will know more about automobile repairing than he now knows.

The book is thorough. It tells how to plan, how to equip and how to operate motor repair shops and how to handle the most simple as well as the most intricate repair jobs.

Each subject is considered separately. The construction of a part or attachment is described, the failures or possible failures pointed out and methods of remedying them set forth in detail.

Chapter VII, for example, is devoted to "Defects in Clutch and Gearbox." This question is then subdivided in part as follows: "Principal Clutch Troubles Outlined, Cone Clutch Construction and Adjustment, Cone Clutch Repair, Plate and Disc Clutches, Band Clutches, Planetary Gearset Repair, Friction Drive Faults and Remedies. Troubles in Sliding Gear Transmission."

Detailed information respecting the subject matter treated in Chapter VII is given because it is representative of the more complete and exhaustive treatment of other subjects of a more complicated character.

The book is published by Norman W. Hanley Publishing Company, of New York, Price \$3, net. It is a work that should appeal to every repair man.

Oxy-Acetylene Welding.

In welding, as in every art, successful results depend somewhat on the skill and knowledge of the operator.

The use of oxy-acetylene gas for welding and cutting iron and steel is increasing very fast. It is a long step from the old to the new ways of welding, from the hand forge to oxy-acetylene equipment.

With improved methods and equipment comes a demand for greater mastery of their use, hence the popularity of the treatise, "Oxy-Acetylene Welding and Cutting," by C. H. Burrows, now in its third edition.

It is written to meet the needs of mechanics and autogenous welders who require short, clear and practical instructions on this subject. The subject treated is a big one and a complete consideration of it would make a formidable volume. The information contained in the book here mentioned is adequate to meet the needs of the motor repair man.

The book is published by the Vulcan Process Company, Minneapolis, Minn., price \$1.50, and it should be worth the price to all repair men who are seeking complete mastery of their work.

Pretty Soft.

A contractor in Chillicothe (Mo.) has ordered a ton of putty for use in the construction of a garage.

An Epoch-Making Executive Committee Meeting of the A. G. A.

An executive committee, appointed by Robert Bland, president of the Associated Garages of America, met at the Congress hotel, Chicago, January 8, to consider some of the many important subjects that will come before the convention to be held in Chicago January 26 and 27.

It was strictly a business session from the hour of getting together at 9 o'clock in the morning until final adjournment at 8:30 in the evening.

Perpetuating the Organization.

One of the most important subjects discussed, about which centered the other matters considered, was that of perpetuating the organization and extending the scope of its work. A recommendation, embodying the view of the executive committee, was drawn up for presentation to the Association at the annual meeting. This recommendation provides means for carrying on the work and placing the organization on a proper business basis with men and money to handle its affairs.

Fire Insurance.

Garage owners and car dealers have been unfairly treated in the matter of insurance rates. Because of carelessness on the part of a few, because of ignorance of physical fire hazards and because of the needlessly heavy losses garage insurance rates are higher than they should be.

A modern, economical insurance idea, based on experience of handling insurance on the proper basis, was presented and given the very closest consideration, every angle of the proposition being gone into thoroughly.

The executive committee, it is understood, will recommend its adoption by the organization.

Changing the Name.

Garage owners and motor dealers heretofore have been considered and to a degree have considered themselves as belonging to separate branches of the industry. In reality their interests are identical.

It is to bring about a unity of ideas and purposes on the part of garage operators and car dealers that a name for the organization, under which all may gather, is now desired.

A number of titles have been suggested, the committee favoring "The Federated Motor Trades Association." Bringing the car dealer and the garage operator—frequently he is one and the same person—together in one organization means rapid progress in the future.

By-Laws and Constitution.

A change of this magnitude naturally will call for a change in the by-laws and constitution. Tentative articles were

drawn and considered, and these will be presented to the Association for consideration and adoption.

A. G. A. ANNUAL.

A great many subjects of importance, other than those to be recommended by the executive committee, are up for consideration.

Among the more timely of these are the following:

National Legislation.

In the president's last message to congress a tax of 1 cent a gallon on gasoline and 50 cents per horse power on motors was recommended.

Officers and members of the Associated Garages of America are opposed to this policy of discriminating against the motor car in favor of the vehicle drawn by animal power. The latter are not taxed or restricted when crossing state lines. The automobile is. Further taxation means further discrimination.

The Stevens Bill.

National Organizer E. J. McGuirk gives this idea of the Stevens bill and other matters to be considered:

"One of the big questions for general consideration will be the Stevens bill. Our attitude in this matter will be clearly set forth and steps will be taken to bring

pressure to bear to aid in the passage of this measure.

Discounts.

"One of the main reasons for united effort on the part of garage men and car dealers may be traced to the present haphazard method of making discounts on accessories and supplies. Many jobbers have not taken the thought or trouble necessary to protect the local dealer. For that reason we hope to establish two facts or bases of working agreement, the first on the question of 'What is a legitimate dealer?' and the second on 'What is a legitimate discount?' We hope, also, to be able to work in harmony with the National Association of Automobile Jobbers.

"There has not, in the past, been the close harmony that should exist between manufacturer, garage owner and dealer. Many grievances have arisen. These will be thrashed out on the convention floor and ways and means of developing more profitable relationships will, no doubt, be devised.

"There are many things coming before the convention that are of interest to every garage owner and car dealer in the country, and we wish to extend to every garage owner and to every car dealer an earnest invitation to attend the meeting. The time and money necessary will be wisely invested."



TOP ROW—Jacob Friedman, Dyersville, Iowa, President Iowa Retail Auto Dealers' Association; E. J. McGuirk, Chicago, Ill., National Organizer Associated Garages of America; F. T. Price, Columbus, Ohio, President Garage Owners' Association of Ohio; H. E. Halbert, Chicago, Ill., President Chicago Garage Owners' Association; J. C. Thorpe, Urbana, Ill., President Champaign County Auto Trades Association; W. K. Vaught, Indianapolis, Ind., President Indianapolis Garage Owners' Association.
BOTTOM ROW—L. C. Steers, Detroit, Mich., Secretary Michigan Garage Owners' Association; F. A. Bean, Detroit, Mich., Director Garage Owners' Association of Michigan; Robert Bland, Evanston, Ill., President Associated Garages of America; E. T. Jones, Akron, Ohio, Director Garage Owners Association of Ohio.

Garage Accounting

[A Monthly Feature Prepared by Horace Edward Hollister, Rockport, Ill.]

COMPLEX SIMPLICITY.

The subject of accounting is invested, in the minds of many who have not given any very serious consideration to it, with considerable mystery. The book-keeper's "balance" is almost as wonderful and hard to understand as the balance of the equilibrist who crosses Niagara on a tight-rope. Nor have the multitudinous forms for various book-keeping purposes, fearfully and wonderfully made, with which the market has been flooded by half-baked accountants in the employ of blank book manufacturers and stationery houses, tended to simplify the matter in the mind of the average person.

As a matter of fact there is no mystery about accounting. It is the process of recording business transactions. There are still three steps or stages in this process, as there have been ever since the cunning Italians invented the double-entry method—the only scientific method of accounting. In the text-books of the schools and business "colleges" these three divisions of records are embalmed in what are denominated the Day Book, the Journal and the Ledger. There may have been a time in the dim and misty past when business houses actually kept their records in the form of three books such as are described under these titles in the text-books, but the memory of living men runneth not to such antiquity.

Nevertheless, as we have suggested, the germ of the principle is there, although the day book has been superseded by numerous special forms and apparatus, the journal usually appears divided into several specially ruled and printed books, and the ledger, instead of being a ponderous sheep-skin bound tome, is a handy and efficient loose-leaf device.

The three general divisions of accounting operations referred to may be defined as:

1. Original Entries.
2. Assembling and Sorting Entries (Journalizing).
3. Final Record (Ledgers).

Original entries of garage transactions are usually made by workmen on time-cards, or by employees selling gasoline, parts and accessories, etc., on some form of sales ticket or material requisition; or by the taxi-driver or garage floorman on some form or ticket constituting the memorandum of charge, of which there are many varieties. All of these tickets, etc., are sent into the office for journalizing.

The "Cash Received" is rung up on

the cash register, or written out on a duplicate credit memorandum form of some kind, and the journal (cash book) record afterwards made from the cash register tape or duplicates of receipts issued.

But whatever the method, the object to be kept constantly in mind is, to furnish an easy and quick means of getting down the essential information for the book-keeper by employees who are not expected to be clerks and whose productive work is along quite different lines.

Where a cost system or perpetual inventory is a part of the accounting system, special provisions must be made on the original entry forms for noting the cost of merchandise or labor sold. The necessity of keeping all these various features in view emphasizes the necessity of using forms designed by competent accounting experts. These forms constitute the foundation of any accounting system and unless they are properly laid out in the beginning they form as unstable a foundation for the accounting superstructure as a weak and improperly designed foundation of a building does for the structure above it.

Next, and equally important, are the journals. As suggested above, the object of journalizing is to assemble and sort the various original memoranda of transactions for the purpose of posting them to their final resting places in the ledger. The object to be kept in mind is to arrange for posting as many items as possible in monthly totals, instead of each item separately, as would be necessary if one journal were used and a separate debit and credit made for each item. In journalizing, there are six general divisions into which the transactions of the garage may first be divided, namely:

- Cash Received.
- Cash Paid.
- Purchases on Account.
- Sales on Account.
- Labor Account (Payroll).
- Adjustments.

For any but the smallest business it is desirable that a separate form be used for journalizing each of these six divisions of transactions, as each affects a different group of ledger accounts, and the effort to combine two or more of these divisions usually results, not in simplifying but in complicating the matter; either by unduly expanding the size of the book to accommodate a larger number of columns, or by contracting the columnar distribution and defeating the very object of journalizing. The

books containing the above six divisions of the journal are usually called:

1. The Cash Book or Cash Received Book.
2. The Cash Paid or Check Register.
3. The Purchase Journal or Invoice Register.
4. The Sales or Sales Distribution Journal.
5. The Payroll Book.
6. The Journal, or the General Journal.

It is now possible to secure uniform sized sheets specially ruled for each of these six divisions, all of which may be placed, each under an appropriate leather tab, in a single sectional post binder. This is very convenient and results in the saving of a great deal of time.

There is not so much variety in the form of ledgers as there is in the records previously mentioned. The ledger record should be in as permanent form as possible, hence the ledger record which is confined to a carbon copy of the customer's account is insufficient, owing to the likelihood of loss or misplacement. The general ledger is the principal book of account of the business. It contains the condensed and classified record of all transactions, and from this book it should be possible at any time to draw off a balance sheet showing the exact condition of the business at that date.

The "one-book" idea of accounting, however, is a fallacy. It is fundamentally bad practice to endeavor to combine both journal and ledger in one binder, as it is impossible to post from one part of the book to another with any degree of facility. In short, the effort to combine and condense accounting "systems" into fewer sheets and binders very often results in the reverse of simplifying the process of accounting, really making it more complicated and difficult.

THE INFORMATION DESK.

Editor, Accounting Dept., GARAGE EFFICIENCY: I have a one-man garage; that is, I own it myself. I don't hire a book-keeper and must admit that I am not running a cost system. I keep books with my customers and keep a record of invoices, etc., yet I do not "keep books against myself." Can one man, not an expert book-keeper, with all the duties of garage management on his shoulders, find time to keep an intricate cost system, or one of your systems?

I have a general idea, of course, where I am making money, and where I am losing. I know pretty well what my overhead is. I get good prices and give only high class service on gas and electric cars—my garage being located on the north side of the city in a high class thickly populated residence district. I am carrying from 7 to 8 men in the day and night service work and have not been able to figure out where a bookkeeper would "get me any-

thing" unless "she was a HE" and able to help in "hiking" and general floor work.

Very truly yours,

Indiana.

Your business, as you describe it, is perhaps a rather unusual problem. We can readily appreciate the reluctance with which you contemplate, under the circumstances, the employment of a bookkeeper, and so increasing your expense without any direct increase of revenue or profits; or on the other hand, taking upon yourself the additional work a more complete set of accounts would involve, when, as we can readily guess, you find your hands pretty well filled looking after all the details of a business employing seven or eight men. We think that you well describe your business as a "one man proposition"; a well-managed and doubtless profitable one-man business, but nevertheless a business limited to a certain size in its possibilities of expansion and profit-making by the necessarily restricted limits of one man's capacity for detail. If you have not yet reached your capacity, or if you have no ambition for further expansion, then possibly the time is not ripe for you to make any changes in your accounting system. However, if we were managing a business of the magnitude and complexity suggested by your statements, we would certainly desire to keep our fingers on the pulse of the business by means of an accounting system that would give us information monthly of just what the results of its operations were, not only as a whole, but by departments. We would wish to more and more get rid of the minor details, both in the accounting and operating ends of the business, and give our personal time and attention to the general problems of management and expansion along the legitimate and promising lines that open before the progressive garage men today.

To install a complete cost system and

successfully operate it in your garage you would need the services of a competent bookkeeper. It possibly would not require all the time of such an assistant for the additional bookkeeping, and our thought would be that a bookkeeper-stenographer would be most useful to you, one who could attend to your correspondence and circular advertising, as well as accounting.

There is no questioning the fact that better accounting is the supreme need of the garage business to-day, and that the irresistible current of fact and opinion in this connection are sweeping the progressive garage men on to the goal of greater accounting efficiency. The man who keeps up with the procession will soon be in an entirely different class from the non-progressive in the business. The fact that one-third of the garage men go out of business every year, strikingly emphasizes

the need of more system and efficiency in garage methods.

Please publish a good transient storage tag form.

The following is an excellent form for the required purpose. It will be noted that it is printed in triplicate, one part containing a plain statement of storage rates, being handed to the person storing the car; the other two copies are duplicates, they provide for a quick and easy record of the time car came in for storage and hour it was called for, together with record of any service or supplies furnished. One of these copies goes at once (when car is received) to the office, to be held on a sticker file during the time the car is in storage, as a check against the car getting out without the proper charge being made. The third part of the card is attached to the automobile stored. The three cards are numbered alike.

Facts Support Argument for Measured Service Vs. Flat Rate

Commercial reports show that one-third of the electric garage owners in the United States go out of business every year and from the circulation of magazines devoted to electric vehicles, we estimate that there are not less than 7,500 electric garages in the country. This means that there are some 2,300 men in this business today who are going to fail during the year unless they succeed in unloading losing propositions on deluded unfortunates. As the public becomes more familiar with the electric garage business there will be fewer buyers, therefore, garage owners for self-preservation must adopt more efficient business methods.

The most urgent demand is for a gen-

eral advance of about 25 per cent in rates, but in order that this may be equitable, measured service is necessary. It is especially opportune at this time to be able to present accurate figures from a large, modern, thoroughly equipped electric garage that has been operating on this system for several months.

These figures are absolutely correct, excepting the charges for hiking, storage and general care. Twenty cents per hike is not sufficient as an average, although some hikes might be less and others should be more. Twenty-five dollars for storage and general care is not enough to pay rent and service, and the owner of this garage thinks it would be better to divide this charge into separate items so that light and heavy runners could all be treated fairly. From his experience he has evolved a rate sheet that meets the views of his customers and overcomes the thousand and one criticisms that any new method must elicit. He believes that the adoption of similar rates by the best garages in certain localities, or by all the garages in the city, would place the business on a sound basis, and would strongly appeal to the public because of its fairness. His experience under the sharpest competition has proven the superiority of the measured service over flat rates as shown in the following table, and it presages the ultimate adoption of this system by all reliable garages.

Although he has lost some customers who had old cars with poor batteries and a very few who felt that they must know beforehand just what the month's run would cost, his business has steadily in-

Identification Tag. No. 130

JOSLYN AUTO CO.
320 S. Church Street
GARAGE

DAY STORAGE RATES

4 Hours or less 25c
Each hour thereafter 05c

NIGHT STORAGE

6 p. m. to 9 a. m.

Per Night \$.75
" Week 3.00
" Month—live 8.00
" Month—dead 6.00

The only Garage in Rockford
equipped with Automatic
Sprinklers.

WE ARE NOT RESPONSIBLE for
loss or damage by fire or theft of
vehicles and accessories left with us for
sale, storage or repairs.

Date In.....Out.....No. 130

A. M.	IN	OUT	License No.
1			Name
2			City
3			Car Name
4			Storage
5			Washing
6			Polishing
7			Gasoline
8			Oil
9			Tires
10			Tubes
11			Tire Repairs
12			Supplies
1			Labor
2			Car ready at.....A. M.
3			.....P. M.

Date In.....Out.....No. 130

A. M.	IN	OUT	License No.
1			Name
2			City
3			Car Name
4			Storage
5			Washing
6			Polishing
7			Gasoline
8			Oil
9			Tires
10			Tubes
11			Tire Repairs
12			Supplies
1			Labor
2			Car ready at.....A. M.
3			.....P. M.

creased and he finds that the quality of his cars and the desirability of his patrons have greatly improved; the poorer cars having gone to neighboring flat rate garages. As an illustration he mentions one small car with a twenty-cell battery, the care of which cost over \$50 per month. He advised the owner to take it to one of his neighbors who would give a very low flat rate, but he expects this customer to return as soon as he gets a new car.

On the other hand he has obtained several good cars that pay him a profit while costing the owners considerably less than flat rates. Some people are willing to have others pay their bills, but none like to pay their neighbors' expenses, therefore, the owner of a new car with a good battery that might give him all the service he wants for \$30 or \$35 a month does not care to pay the same as a hard runner with a poor battery who uses much more electricity and demands more service.

In this garage records are kept of all of the various items of expense on every car, but it would serve no useful purpose to tabulate all of them, therefore, he has furnished us the records of ten that are fair representatives of the whole lot.

His records also show the make of car, the kind of tires, the condition of the weather and streets as influencing cost of operation, and the working time of each employe inside and outside of the garage.

The following table is a monthly average for the two months of October, when the weather was fine and streets perfect, and December, when there were storms, snow and ice, when chains were needed and when low temperature reduced battery efficiency:

Car number.	Size of car—small, medium, large.	Condition of battery—poor, fair, good.	Cost of electricity per mile, cents.	K. W. H. per month, average.	Miles made per K. W. H.	Average miles per month.	Average hikes per month.	Cost of electricity per month @ 5c.	Cost of hikes per month @ 20c each.	Cost of storage and general care of car.	Total cost per month.
1	M	G	1.57	106	3.18	338	18	\$ 5.30	\$ 3.60	\$25.00	\$33.90
2	L	G	1.64	218	3.04	663	44	10.90	8.80	25.00	44.70
3	L	G	1.82	275	2.74	756	55	13.75	11.00	25.00	49.75
4	L	F	1.89	112	2.64	294	33	5.60	7.60	25.00	38.20
5	M	G	1.98	200	2.52	504	27	10.00	5.40	25.00	40.40
6	L	G	2.02	147	2.47	363	23	7.35	5.80	25.00	38.15
7	M	F	2.29	269	2.18	586	36	13.45	5.20	25.00	43.65
8	L	F	2.4	139	2.08	291	1	6.95	1.20	25.00	32.15
9	M	F	2.57	120	1.94	233	35	6.00	7.00	25.00	38.00
10	L	F	3.08	196	1.62	237	3	9.80	.60	25.00	35.40
Average						178	426				

Owners did not use their cars so much in December as in October. The average mileage in October was 529, while in December it was only 426.

It was found that it required 33 per cent more electricity per mile in December than in October.

This table corroborates previous observations that it requires more electricity to charge small batteries than the larger ones as shown by the miles per K. W. H. and the cost per mile of cars 4 (large) and 8 (small) with batteries in similar (fair) condition.

The cost per mile varied from \$1.57 to \$3.08. The cost of electricity for the

month from \$5.30 car 1, to \$13.75 car 3, on the average; but with one of these cars, for one month, the electricity cost \$24.35. The cost of hiking per month varied from 20 cents, car 8, to \$11, car 3. The total cost per month varied from \$32.15, car 8, to \$49.75, car 3. The general care of cars would show similar differences by his perfected rate sheet, according to the number of days when the

car was not out of the garage and the number of washes required.

This table would appear to indicate that \$40 per month might be profitable, but a 25 per cent advance all along the line is absolutely necessary to place the garage business on a legitimate basis. At that rate owners would find the operation of electrics much more economical than that of gasoline cars in very many cases.

Some Facts Respecting the Garage Fire Hazard

Take almost any daily paper and in that portion devoted to fires you will find recorded an account of the destruction of an automobile, a garage or damage to one or more of both.

The fire risk in the ordinary garage is needlessly great. Fire losses are much heavier than they should be and rates on garages are much higher than they should be and much higher than they will be when adequate attention is given to ways and means of preventing fires.

A letter containing much excellent advice was prepared by E. C. Dickinson, president of the Algona Auto & Machinery Company, of Algona, Iowa. This letter was addressed to car dealers and garage men of Iowa.

ALGONA, IOWA, December 20. — MR. DEALER: Did you ever have a fire? No! Well, you may have one. Fire comes when least expected. "An ounce of prevention is worth a pound of cure."

plant; loss, \$40,000.

Plymouth, Pa., gasoline explosion; loss, \$15,000.

Philadelphia, Pa., overheated stove; loss, \$10,000.

Allston, Mass., gasoline explosion; loss, \$56,000.

Hoboken, N. Y., cause unknown; loss, \$100,000.

Pittsburgh, Pa., gasoline explosion; loss, \$6,000.

Kensington, Kans., fire originating in workroom; loss, \$5,000.

Northwood, Ia., gasoline explosion, vulcanizing department; loss, \$600.

Mineola, N. Y., back-firing exploded gasoline; loss, \$2,000.

Erie, Pa., incendiary; loss, \$600.

Philadelphia, Pa., cause unknown; loss, \$5,000.

Philadelphia, Pa., back firing motor truck; loss \$5,000.

Kankakee, Ill., paint near stove ignited; loss, \$50.

Talihina, Okla., cause unknown; loss, \$1,000.

Lincoln, Neb., origin unknown; loss, \$3,000.

Gardiner, Me., papers back of desk; loss, \$1,500.

Milford, Mass., gasoline being poured into truck exploded; man seriously injured; loss, \$500.

Gary, Ind., probably an explosion caused loss of \$2,075.

Seattle, Wash., spontaneous combustion; loss, \$27,000.

Beloit, Kans., origin unknown; loss, \$5,500.

Monroe, Ia., cause unknown; loss, \$20,000.

This wholly inadequate review of the fire loss among garages in three weeks makes a total of \$307,825. Estimating the losses in other garage fires, that have been reported, but regarding which there was no information respecting cause or amount of loss, at \$200,000, makes the enormous total of \$500,000.

Speaking in a very exact way, the actual losses are—at the very lowest, \$307,825 more than they should have been. There is no real necessity for a fire orig-

A clean floor is a good thing in more ways than one. Dirty grease pans, dirty waste or rags, dirty and discarded overalls will often start a fire.

KEEP THEM PICKED UP AND BURNED.

Take a look around your furnace room, or around your stove. If you find a lot of waste paper or excelsior—*burn it up*. Such things often cause serious fires.

Defective extension cords and leaky gas lines have been known to get together at the wrong time.

Fire Protection is a good thing, but Fire Prevention is a thousand times better.

Some of the Causes and Losses of Garage Fires.

Medina, N. Y., explosion; loss, \$2,000.

Sheridan, Wyoming, defective heating

inating in a garage. That may sound like bunk, but it is not.

There is a certain limited percentage of fires that seem beyond the control of any preventative measures that may be adopted. If it be conceded that such fires must occur, an allowance of say 20 per cent may be made to cover the losses. The

remaining 80 per cent of the fires could be prevented by intelligent care and wise supervision on the part of the owner.

An employe, with little at stake, may be carelessly disposed. The owner is the one to set the pace, to establish and enforce regulations. It is the owner's dollars that are at stake, it is the owner's reputation

that suffers in the event of a fire.

An insurance man said: "I can take this garage risk, now paying 4.05 per cent, and reduce the risk to a basis where the business will be profitable at 1 per cent—if he will follow the suggestions I will make, and my suggestions will not include rebuilding."

A Story of the Coming Convention and History of Michigan Association

Says the program issued by Live Wire Steers, secretary of the Michigan organization: "Like the snowball rolling down hill, the association idea grows as it moves onward," but unlike the snowball it does not melt in warm weather.

Looking over the program, with its array of treats in store for all who come, it is difficult to conceive how any garage man or car dealer can keep away from the meeting to be held at the Statler hotel, Detroit, January 20 and 21.

Several hundred of the most progressive garage operators and car dealers of the state now are enrolled with this organization. Because of the unstinted giving of time and thought on the part of the leaders the Michigan association has made progress each month. Its record shows an increased membership, greater interest in the work on the part of officers and members and a record of accomplishment that has been equaled in no other state.

Origin and Growth.

In August, 1914, on the fifth day, to be exact, Roy L. Francis of Detroit succeeded in getting a number of garage owners and station operators of that state together to consider the idea of directing and shaping the growth of the business. The outcome was the organization of the Detroit Garage & Station Operators' Association, formed for the purpose of "providing suitable meeting places, promoting industrial interests, inculcating just and equitable principles of trade, establishing and maintaining uniformity in commercial usages, preserving and disseminating valuable business information, co-operation in the improvement of service rendered by garages, adjusting differences and settling

disputes between members and for any other purpose conducive to the success of each member's business."

Mr. Francis presided at the first meeting which resulted in the election of a board of directors and officers, the directors being: R. L. Francis, F. A. Bean, L. C. Steers, H. R. Stoepel, J. J. Towers, J. Geibig and J. Wolter. The officers

tion was felt, particularly during the fight made for the lien law.

Plans were formulated after the return of delegates from the annual convention of the Associated Garages of America, held in Chicago in January, 1915. A "CALL" was sent out and a meeting held at Hotel Statler in May, 1915, and on that date the Garage Owners Association of Michigan was launched. Provision was made for the organization of local associations and a number have been formed in various centers in the state.

Michigan Lien Law.

The Detroit Garage Owners' & Station Operators' Association forced the enactment of the current lien law of the state and because of the strong fight they made were able to have the law passed over the governor's veto. The program of the first annual of the state association contains a reprint of the law.

Steer-o-grams.

Possibly they are not Steer-o-grams but they sound like some of his sage observations. You will find them at the foot of the right hand pages of the program and they are worth reading:

We AIM

To establish a more friendly relationship between our members.

To promote their general welfare by elevating the standard of garage efficiency.

To inspire confidence in garages by promoting a friendly relationship between garage owners and their patrons.

To assure to garages the recognition and relationship to automobiles and motoring to which they are entitled.

To establish uniform standards of service to the tourist.

To assist in procuring proper legislation and to oppose harmful legislation.

To improve the standard of service to garage employees.

To assist in equalizing and lowering insurance rates.



Hotel Statler, Michigan Convention Headquarters.

elected were: President, H. R. Stoepel; vice president, F. A. Bean; secretary, J. Geibig.

Keen interest was manifested and success was assured from the outset.

Shortly after the organization of the Detroit association the need for a state wide association to aid in handling many of the problems then up for considera-

We advocate the elimination of trade discounts to consumer and to stimulate the sale of automobile supplies by the garage.

Without co-operation the small garage owner must be swamped in the rush of competition.

Efficient organization augments value wherever applied.

Organization leads to a better day in the garage industry.

Friendships made through good business last as long as the business world endures.

Associated interests can best estimate the standards to be set and the dangers to be avoided.

Fellowship makes you a bigger man, capable of greater undertakings.

Garage men in every county should seize the present opportunity to get together and make arrangements to organize local associations.

The perfect score of efficiency comes only when there remains not a single garage concern in your community outside the garage owners' association.

To change the attitude of the public toward the garage it is necessary, first or last, to change the attitude of the garage owner toward the public.

The public can be educated to the reliability and integrity of the garagemen only by organized, persistent and consistently honest effort.

This work calls for national, state and district organization, for a spirit of co-operation and for a lot of hard work for

12:30—Adjournment for luncheon (in small banquet room).

JANUARY 21, AFTERNOON SESSION.

2:00—Reading of minutes of last meeting; admission of new members; *Payment of dues*; reading of annual report by the Secretary; annual report of the treasurer.

Committee Reports—

Auditing, V. Oldberg, Chairman.
Grievance, G. R. Vanderwee, chairman.

Publicity, Clyde E. Swain, chairman.

Entertainment, F. E. Price, chairman.

Insurance and Banking, F. A. Bean. (Mr. Bean has spent several months of hard work on this report and it will be worth the effort of every garage man coming to Detroit to hear it. *Don't miss it.*)

"The Needs of the Organization and Co-operation," by E. F. Jones, First Vice-President of the Garage Owners' Association of Ohio.

6:00—Adjournment. (The Detroit association will provide cars, to leave the hotel at 8 o'clock sharp, to convey all members, visiting delegates and garage men to the Auto Show. Cars will leave the Show at 11:30, returning to the hotel.)

JANUARY 21, MORNING SESSION.

10:00—Convention called to order. Address on "Cleanliness, Efficiency and Salesmanship," by Ray W. Sherman, associate editor the Motor World.

Address, "Legislation," by Hon. Patrick O'Brien, Iron River, Mich., editor of the Iron River-Stambaugh Reporter and member of the state legislature.

Address, "Aids of an Association Medium," Frank Roderus, Chicago, business manager GARAGE EFFICIENCY.

Report, Purchasing Committee, L. C. Steers, chairman, followed by general discussion of the advantages of Association Purchasing, led by E. J. McGuirk, ex-secretary of the Chicago and Illinois Associations.

12:30—The president will appoint a nominating committee to meet during the noon recess and select nominees for the following officers:

President, 1 year.

Third vice-president, 3 years.

Secretary, 1 year.

Treasurer, 1 year.

One director, 5 years.

Chairman of purchasing committee, 1 year.

JANUARY 21, AFTERNOON SESSION.

2:00—Convention called to order. Committee reports.

For the Car Dealers' Division, A. W. Rumsey, chairman, Detroit.

For Improvement of Business Conditions, G. R. Austin, chairman, Grand Rapids.

Legislative, Charles A. Gower, chairman, Lansing.

Good Roads, C. F. Strong, chairman, Coldwater.

State Manufacturers' Associations of Gasoline and Electric Automobiles, F. E. Price, chairman, Detroit.

Resolutions from board of directors.

New Business. Election of officers. "Good of the Association," F. E. Avery, Columbus, Ohio, Third vice-president of the Associated Garages of America; A. J. Peebles, Columbus, Ohio, Secretary of the Garage Owners' Association of Ohio, followed by a general discussion.

6:30—Adjournment.

(Banquet will be given in the main hall at 7:00 sharp. A surprise awaits everyone.)



L. C. Steers, Detroit, Mich., Secretary Garage Owners' Association of Michigan.

7:00—BANQUET.

MENU.

Garage Booster.

Flake Graphite Cocktail.

A. L. A. L. nuts. Ball Bearings.

Electrolite Soup.

Fillet of scrap rubber, *au Gremel*.

Special heat treated turkey, *a la Price*.

Baked Dry Cells.

Sponge and Oil Soap Salad.

Frozen Radiator. Chopra Rings.

Black Cylinder Oil.

Minella Tow Lines.

During the courses music will be furnished by a quartet, assisted by a five-piece orchestra.

"Cost Accounting," by Jud S. Joslyn, Rockford, Ill. Address will be illustrated by lantern slides, as Mr. Joslyn has applied accounting to his garage business. Don't fail to hear this talk.

"We thank you," by the Entertainment Committee.

New Officers of the Detroit Association.

DETROIT, MICH., Jan. 6.—The annual meeting of the Detroit Garage Owners and Station Operators Association was held in this city last night.

The reports of the work undertaken during the past year showed wonderful progress. The one feature of this meeting which largely distinguishes it from the monthly meetings was the annual election of officers. The directors whose terms expired were: L. C. Steers, E. F.



Garage Operated by L. C. Steers, Secretary Garage Owners' Association of Michigan.

which the worker will not receive wages. Their pay will be a share of the future greater profits all garagemen are to realize.

A Comprehensive Program.

JANUARY 20, MORNING SESSION.

9:00—General registration, in charge of the registration committee, where complimentary tickets for the noon-day luncheon on Thursday, tickets for the banquet on Friday evening, together with handsome convention badges and souvenir will be given to each member, visiting delegate and garage man.

9:30—Seating the delegates.

10:00—Opening of convention. Address of welcome, Mayor Marx. Response, President Glenn L. Orr.

Address on *The Garage Evils*, Robert Bland, Evanston, Ill., president of the Associated Garages of America and operator of one of the largest garages in Chicago. *Roll Call of Members*, Secretary L. C. Steers.

Esper and A. H. Dorsey. L. C. Steers was re-elected to serve two years and Clyde E. Swain and Frank Gremel were chosen to fill the vacancies.

A meeting of the board of directors was held and the following officers elected: Former vice-president, J. J. Towers, was elected president; Clyde E. Swain, vice-president; L. C. Steers, secretary, and R. L. Francis, treasurer.

F. A. Bean retired from the presidency but retains his membership on the board of directors for another year. The board includes the four officers named and the three members whose names are given: F. E. Bean, W. L. Reno and Frank Gremel.

President Towers took the chair and announced that he would postpone the appointment of committees until after the state convention had been held.

ILLINOIS ASSOCIATION MEETING.

Interest naturally centers in the forthcoming conventions to be held in Chicago this month. The annual meeting of the Associated Garages of America will be preceded by the meeting of the Garage Owners' Association of Illinois, which convenes January 25.

This meeting should and undoubtedly will be well attended by the garage men and car dealers of the state.

A Quick and Profitable Trip.

On Wednesday, January 12, Henry Williams a member of the Chicago Garage Owners Association, E. J. McGuirk, the national organizer, and Robert Bland, president of the Associated Garages of America, drove to Waukegan, Ill., and organized the local garagemen of that city. It was a hard drive through the slush on the up drive and a still harder drive through the blinding blizzard on the return.

This is an organization of the garage owners and car dealers of Lake County, Illinois, in which there are estimated to be twenty-one prospective members.

It is work like this that is carrying the work of organizing the garage interests forward at such rapid rate.

Progress in Ohio.

A. J. Peebles, secretary-treasurer of the Garage Owners Association of Ohio, is making a personal canvas of the state, calling on garage owners in a membership campaign.

Garage owners are responding to the businesslike call to get together and to work together for the promotion of their general interests and welfare.

The Ohio organization, launched in October, is making exceptionally good progress. Local associations are being organized, general interest in the purposes of the association is being created and maintained and the work, so recently

undertaken, is being carried forward in a way that insures good results and a prosperous association.

The garage men of the state have not rallied to this cause as spontaneously as they should have and that, briefly, is the



A. J. Peebles, Columbus, Ohio, Secretary Garage Owners' Association of Ohio.

history of all efforts to organize the men of an industry. Great progress has been made, however, and greater progress is assured for the future.

Anti-Competition Discussion at Columbus.

COLUMBUS, OHIO.—The Stevens bill, seeking to legalize price standardization, now pending before congress, was discussed yesterday by Hugh Huntington, attorney, before members of the Garage Owners' Association of Ohio, meeting here. The sole object of the bill, he explained, is to prevent discrimination in prices and to provide for publicity of prices to dealers and to the public.

Nobody questions the right of the manufacturer to say at what price he will part with his goods to the next man. The controversy comes over his right to say what the next man shall charge the consumer. The proposed bill undertakes to make it lawful for a manufacturer to contract with the jobber, whereby he prescribes the sole and uniform price at which the article may be resold.

The Stevens bill is, in every sense, an anti-monopoly measure. It is designed to promote the prosperity of the merchants in towns and cities and check the growth of great trading monopolies. It will go a long way toward establishing conditions of fair competition instead of cutthroat methods that are destroying so many independent merchants. Every consumer, every manufacturer of standard articles and every merchant will be benefited by the passage of the bill. Under present conditions the individual merchant is doomed. The big mail order houses and the so-called "chain stores" are absorbing the retail market so rapidly that those who have kept watch of the tendency are wondering how long it will be before the independent store is practically eliminated.

ORGANIZATION AT BATTLE CREEK.

Recently H. E. Petrie and L. C. Rivers, two of the live garage men of Battle Creek, Mich., came to the conclusion it would be an excellent thing to organize the garage men, car dealers, purveyors of tires, supplies and accessories and the repair men of that growing city.

This idea did not end with a mere conclusion that it would be a good thing for the people of kindred interests to work in harmony. The two set to work to bring about a real organization.

The first step was to get all interested together under conditions that would show individual and general aspects of the trade in their true relation. A banquet was arranged for December 17, and was held at the Post Tavern.

One result of the energetic work of Messrs. Petrie and Rivers was an outpouring of the members of the local trade. The men behind the movement, to make assurance more than sure, imported aid from Detroit, consisting of F. A. Bean, president of the Garage Owners and Station Operators' Association, of Detroit; L. C. Steers, secretary of the same organization and of the state organization; Miss Gunnell, recording secretary; Mr. and Mrs. L. S. Currier, J. F. Siegert and W. C. Hurley.

L. S. Currier was induced to serve as toastmaster and between courses introduced the members of the visiting delegation to the Battle Creek garage men.

Later there was a general exchange of opinion respecting the value of the work an organization of this kind contemplated could undertake. These talks were enlightening and the period given over to this exchange of views brought out a great deal of information and suggestion of value to all present.

Unanimous Sentiment Favors Organization.

At L. S. Currier's suggestion F. A. Bean, of Detroit, consented to serve as temporary chairman. Miss Gunnell took the temporary secretaryship. The temporary chairman gave an outline account of the steps now being taken to lower insurance rates on garage risks. He reviewed, briefly, the results of the very thorough investigation made by the committee, of which he is chairman, into conditions, rates and risks surrounding garage insurance.

The chair's request for an expression of opinion on whether or not those present favored organization brought every eligible man present to his feet in affirmation.

Directors and Officers.

The results of a ballot, duly authorized, was announced and showed the following had been elected directors:

For two years: Frank Palmer, Henry Phillips, Fred Teeter, George Williams.

For one year: Louis Bloomhover, H. E. Petrie, Robert McKay.

The directors then met and elected officers to serve until the first annual meeting is held, in January, 1917. The officers are:

President, Frank Palmer.
Vice-President, Henry Phillips.
Secretary, H. E. Petrie.
Treasurer, George Williams.

In taking the chair President Palmer called for the united support and hearty co-operation of every one affiliated with the organization to insure its unqualified success.

By-Laws and Constitution.

H. E. Petrie was called on to report for the committee on Constitution and By-Laws. He recommended that the form of constitution used by the Detroit Garage and Station Operations Association be adopted, with the amendment that the annual meeting be held on the first Wednesday after the second day of January.

He also recommended that the charter membership fee be placed at \$5 for all members joining before January 1, 1916, this fee to include all dues until December 31, 1916. All members received after January 1 are to pay a fee of \$10, to cover all dues until December, 1916.

After December 31, 1916, the membership fee shall be \$25—and \$15—and dues shall be \$10 per year, unless the regulations are amended by the board of directors. The report was adopted as read.

Arrangements were made for further early meetings.

A rising vote of thanks was given Mr. Petrie in appreciation of his labor in bringing the garagemen together. The Detroit delegation was given a rousing vote of thanks for the great assistance it had rendered.

Getting in the Members.

Since the initial meeting several others have been held and an aggressive membership campaign has been conducted that has brought many into the fold.

The membership list now embraces the following:

Frank Palmer.	F. Maltby.
H. Phillips.	E. R. Finlay.
H. E. Petrie.	L. C. Rivers.
George Williams.	S. Cushman.
C. R. Williams.	Fred Teeter.
C. B. Morse.	L. S. Bloomhower.
R. McKay.	F. E. Riley.
J. C. Huffman.	W. A. Wattles.
C. Sanders.	R. D. Norton.
D. A. Artlip.	L. H. Ordway.
W. E. Teeter.	Archie Guy.
W. M. Hoffmaster.	C. H. Hoagland.

Committee Appointments.

At a meeting of the association held December 22, standing committees were appointed:

AUDITING.

R. McKay.
C. B. Morse.
F. Maltby.

PUBLICITY.
H. E. Petrie.
G. Williams.
H. Phillips.

GRIEVANCE.
W. Teeter.
C. B. Morse.
J. C. Huffman.

LEGISLATIVE.

W. M. Hoffmaster.
F. Maltby.
L. C. Rivers.

GOOD ROADS.
S. Cushman.
L. S. Bloomhower.
C. R. Williams.

PURCHASING.
G. Williams.
H. E. Petrie.
C. R. Williams.
L. Bloomhower.
H. Phillips.

IMPROVED BUSINESS CONDITIONS.

C. Sanders.
H. Phillips.

F. Teeter.
Frank Palmer.
C. B. Morse.

At the several meeting matters of vital importance and interest to the members have been discussed. The organization is lined up ready for the work before it and both officers and members are confident of making that progress which will strengthen the association by improving operating conditions.

TRI-CITY AUTO SHOW.

DAVENPORT, IOWA, Dec. 21.—A special committee has been appointed by the Tri-City Automobile Trade Association, embracing in its membership the automobile trade of Davenport, Rock Island and Moline, to take charge of the Automobile Show. The committee has completed arrangements by which the Coliseum was secured.

The show will begin March 8 and continue until March 11. There is every indication that this show will be the biggest and most successful of any held by the Tri-City trade.

Reservations have been made for more cars than ever before. The only handicap is that imposed by the limitations of space. All models and styles will not be shown for that reason, but the exposition will place before those who attend the largest number of cars that ever has been shown in this city.

The Chicago Show.

The front of the automobile show battle has shifted from New York to Chicago, scattering a bit en route to include smaller engagements at other points.

Samuel A. Miles, general manager of the Chicago Show established headquarters in the Coliseum early in the second week of the month. The Chicago show will open January 22 and is described as the "greatest and most prosperous mechanical exposition in the world's history."

"The New York show was marvelous, and, judging by the law of averages, the Chicago display will simply deprive us of adjectives and adverbs and expressions of admiration," said Mr. Miles. "The New York show demonstrated what most

of us knew already, that the country is on the top crest of prosperity. Sales and attendance records were smashed day by day, until we saw it was futile to keep making comparisons with the puny past."

Mr. Miles expressed gratification concerning the fast progress made on decorations. "Little Tokio," as the scenic scheme of the Coliseum during the coming Automobile Show has been named, has been painted and tinted and gilded to perfection by Artist Tietzel and his staff, and about all that remains is the installation of the artistic structures, panels and draperies.

To Entertain Iowa Dealers.

Through the courtesy of Beckley-Ralston Company, Eighteenth street and Michigan boulevard, arrangements have been made for a large room in that building to be used as a meeting place for all the dealers from Iowa during the automobile show and convention of the Associated Garages of America. That company has provided room, telephone service, a stenographer and devised other methods of catering to the comfort and well being of their guests.

S. L. Seeman, secretary of the Iowa Retail Auto Dealers' Association will be in charge and requests that all who care for service use the room and equipment that has been provided. It will be an excellent place to meet friends, to transact business, to receive mail.

RACINE'S AUTO SHOW.

Racine's Fourth Automobile Show will be held in the spacious auditorium in that city on February 17, 18 and 19. Racine's show has always attracted unusual attention due to the high character of exhibits. The J. I. Case Threshing Machine Company and the Mitchell-Lewis Company, whose factories are located in Racine, will exhibit the same cars and chassis that were at the New York Show. The Jeffery Company, of Kenosha, will also follow their example. From twenty to twenty-five different makes of cars will be shown, including pleasure, electric and commercial.

Racine's show has always ranked as one of the first in regards to the number of cars actually sold at the show last year. One dealer reported six sales for a car selling at about \$1,000. There were 21 cars sold during the three days last year.

The show is given under the auspices of the Racine Auto Show Association, F. W. Griffith, manager.

Christmas Decorations.

WATERLOO, NEB.—Nearly every garage in the city was decorated with wreaths, holly and Christmas garlands for the holiday season and the streets presented a lively and attractive appearance when the lights were turned on.

DO YOU BELIEVE IN SIGNS?



The tendency of human nature at this time is to look forward enthusiastically to the new year. Everyone, from the business man down to the carefree children are looking forward and speculating as to what the new year is going to bring.

Very few people think it worth their while to take their calendar down and turn the pages back and consider what has happened in the year just closed. There are some few who do so, and do so with the end in view of laying their plans for the future. They see mistakes that have been made and they see good points that could have been more strongly developed. Such individuals and corporations have taken a big step towards insuring themselves future prosperity.

We would like to turn back not only the pages of the year that has just passed, but to turn back several years and call your attention to the lines of business that occupy the principle positions. Of these there are two that stand out most prominently. Without question they are the automobile and the motion picture business. Our interest, of course, is centered mainly in the automobile and most especially in the garage portion of this industry. Every day sees some new names added to the list of garages doing business in the United States, and very frequently we see names that have occupied a position for years back, dropping out. It is the wise man that appreciates these facts and looks to see the reason.

In a field in which the competition is

so keen it is always well for the man starting in, or already established, to keep himself posted as to the means of keeping step in the march of progress.

A considerable portion of all garage business is, of course, transient, and from this transient trade a big percentage of permanent customers is made. What means do you employ to attract the attention of this class of trade, or do you employ any? If you do, it is well to stop and consider whether the means you are using are efficient. If you do not, it is well for you to look over the means at your command.

In taking up this phrase of the garage business for our subscribers, we have canvassed the field pretty thoroughly, and we do not hesitate in stating that an electric sign is, in all probability, the most effectual means you could employ. A man running out of gas or having a blow-out on a boulevard immediately looks up and down the street for help. This is especially so at night when his work must be done under proper illumination. The first garage that attracts his eye is the one to get his business. The garage that identifies itself by means of an electric sign is the one that he will steer straight to.

The Federal Sign System (Electric), Lake & Desplains Sts., Chicago, Ill., have consented to furnish us with a cut of an electric sign. That seems to be most popular with garages. They recommend it on account of it having sufficient character to compel attention without having its value lessened in any way by an in-harmonious display of glaring electrical

effects. The Federal Sign System have made a study of this phase of the sign business, their study being directed by experts, and we feel they are in a position to intelligently furnish advice.

The Gear Was In.

HARTINGTON, NEB.—While workmen were repairing an automobile in a local garage the gear was shifted and the car shot backward through a wall, sped across the street and was wrecked.

Right to Seize for Repairs.

MORRISTOWN, N. J.—A case to determine the constitutionality of the law passed last winter permitting garage keepers to seize automobiles for unpaid bills was started on its way in the Morris District Court yesterday. Judge Joseph Hinchman reserved his decision, but it is stated that, whatever he decides, the case is to go to the Supreme Court. The Phoenix Cheese Company August 12 had a car disabled here. It was taken to E. Allen Carpenter and L. Wittington Ward, representing an auto manufacturer, for repairs. The agent of the company took the car away, but when the bill was presented for \$42.10 the cheese company objected, claiming that it was too much for the work done.

The car was seized November 4 on the order of the sales agency here. The Phoenix Company immediately replevined the car and then the suit against the cheese company was started.

News From Garage Men Here, There and In and From Other Places

An Electric on a Rampage.

DES MOINES, IOWA.—An electric car escaped from a garage and plunged over an embankment. Better hobble them in the future.

Standardizing Prices.

LORAIN, OHIO.—An informal conference of garage owners and repair men recently was held in this city at which an agreement was reached respecting prices for repair work. A uniform price of 60 cents for repair work will be charged in the future. Meetings are to be held regularly.

Aurora (Ill.) Wants "Residence Districts."

AURORA, ILL.—Club women of this city are agitating the question of having certain sections of the city set aside as "residence districts." They contemplate asking for an ordinance for that purpose so that it will be impossible for any old barn, shed or out-building to be converted into a modern (?) garage merely by hanging out a sign and putting in a supply of gasoline.

Reducing the Cost.

YOUNGSTOWN, OHIO.—The Tire Shop, 1306 Market street, has a novel repair system which permits the car owner to leave his car in the company's garage while the tires are removed, repaired and cleaned, the charges being the same as for ordinary repair work. T. P. Dalzell, the proprietor, points out the advantage of preparedness in having tires put in condition now so they will be ready for use when needed.

Baltimore Garage Location Fight.

BALTIMORE, MD.—A hot fight is being waged against the property owners of the 1000 block of Cathedral street and the holder of the option on the property at 1013, on which it has been proposed to erect a garage.

An outcome of this local fight is the movement to have the state legislature giving the Art Commission jurisdiction over the location of garages and machine shops. Locally, this contention is arousing great interest.

Supply of Repair Men.

SALT LAKE, UTAH.—It is announced that a course in automobile repair work will be started by the University of Utah mechanical engineering department within a few days to continue until April 1.

A similar course was given last year. The university purchased cars, repaired and then sold them. This year cars have been offered by owners for repair.

The course will include the overhauling and repair of machines, and lectures on

the principles of operation and construction of the modern automobile.

Wichita Rate to Advance.

WICHITA, KAN.—Henry Ford's plan of paying a minimum wage of \$5 a day doubtless will work a revolution in prices charged by the garage and repair men of this city. Heretofore it has been the custom to pay mechanics and machinists according to their skill on an hour basis. When the Ford company made known its intention of paying a \$5 minimum in its Wichita assembling plant many skilled men applied for work, necessitating a readjustment of wages on the part of the garage owners and repair shops. Consequently higher prices for labor are being paid and prices of repair work are to be advanced and the cost of maintaining an automobile will go higher.

An Efficiency Club.

ROCK ISLAND, ILL.—Employees and members of the firm of Horst & Strieter Garage Company met at the Rock Island Club last night for the purpose of forming an organization for mutual betterment. There has been a temporary organization for some time but a permanent organization was not formed until last night. The club is to be known as the Horst and Strieter Efficiency Club. The object of the club is to promote the personal efficiency of every member and in this manner increase the efficiency of the entire group.

Dinner was served at 6:30 with 23 persons present. This number includes every employee and members of the firm expressed pleasure that the interest is so great. The organization will carry into practice the watchword of the firm, "Maximum service at minimum cost for Ford owners." A nominating committee was selected and officers will be elected at the next meeting. The club will meet once every month hereafter.

Keep the Garage Warm.

It has been proven through scientific tests that a great harm is done to an automobile stored in an unheated garage for the winter, not only to the body and paint but to the metal parts and also to the coils, carburetors, magnetos, batteries, tires, on account of the various degrees of temperature during the winter months.

When an automobile is in storage where there is no heat, the steel parts draw moisture from the air, then, when the temperature is below the freezing point, you will find the motor frost bitten and actual frost in the working parts of the machine; then comes a warm day which changes the frost to moisture, again caus-

ing rust. You must realize the effect of this on the cylinder heads, cylinder castings and pistons which are ground to the thousandth part of an inch from expansion and contraction of steel. This has also been proven to be cause of the loss of compression and motor power as well as the advance of the consumption of gas and oil, when the car is again put into use.

If possible keep the temperature in your garage above the freezing point, which will do away with these many difficulties.

Johnson Has a Good Year.

DEKALB, ILL.—The Lincoln Highway Garage, under the direction of Fred Johnson, has had a most prosperous season and Mr. Johnson, by good service, is building up a clientele that will continue to grow from year to year.

THE REASON.

With the inviting looking exterior and the clean and well kept interior, most travelers do not drive past it if they are looking for garage service but drive in to get their needs supplied. The efficient service inside takes care of their wants and another satisfied customer is spreading the news along the trail. (Try this plan. Johnson has not copyrighted it—no royalty to pay.)

Why Not Build Trade at All Seasons.

CHAMPAIGN, ILL.—The Herrick Auto Supply has made full preparations for the Christmas and holiday trade. Every conceivable article that would please the autoists has been added to the stock and from the great number of sales reported it is conclusive people are turning their attention to useful gifts for their many friends that have automobiles.

Tires have especially been a popular gift and a very useful one. As usual Miller tires have been the great sellers in the Twin Cities. Mr. Herrick is very highly pleased with the manner in which the Christmas trade has developed, it being rather a novel idea to give automobile accessories and tires as Christmas gifts.

A great many novelties have been added, such as horns, robes and pumps. The Herrick Auto Supply has become the center of activity and many women have visited the store to select a present which will be useful and a great surprise for the husband.

The Herrick free service for autoists has been proving very popular and from the large number of calls received daily it would seem people are fast taking advantage of the offer to take charge of the car for the winter. The store has been packed with tires received from the patrons taking advantage of the free storage offer.

In addition to this new feature the old service of free service to everyone in trouble is still in operation and many calls are received daily to help some one with changing tires and attending to their many wants.

Effect of Using All-Year Cars.

SCHENECTADY, N. Y.—The coming of the all-year car and the demountable top has worked out well for the garage keeper. In the past the majority of touring car owners put their cars in dead storage during the winter months, but this year many of them have purchased demountable tops and will keep their cars in commission all winter.

Next year the proportion of cars which will be kept running during the cold months will be still larger, as buyers today are almost, without exception, ordering all-weather cars.

They are divided between the permanent top type, where only the glass is removable, and the so-called demountable top type, where the owner removes his one-man top and replaces it with a detachable top made of wood and glass.

There is a rush for the detachable top by owners of open cars, and naturally the manufacturers of these tops are endeavoring to keep up with the trade. There are a great many detachable winter tops on the market.

Subway Garage for Minneapolis.

MINNEAPOLIS, MINN.—Automobiles per capita have become so numerous in Minneapolis as to be thought a menace to safety and a hindrance to traffic in the center of the city. The time seems to be at hand when provision by the city or by some capable corporation should be provided for the storage of cars not in use downtown.

Alderman Downes has proposed that the city engineer draft plans for the building of such a garage to be built and operated by the municipality, beneath Eighth street, extending the full width of the street, from First Avenue N. to Second avenue S., a distance of about 1,500 feet. This space, it is believed, will provide accommodations for about 2,000 cars. As the need of space grows it is suggested that other similar sub-surface garages may be opened.

The subterranean garage is not an untried plan. At least one other city is using this structure to good advantage. Nothing in the nature of the problem would seem to indicate that it will not be a success. As the city grows its streets must become two-story or three-story. If transportation may be successfully carried on beneath the surface, storage of cars surely may be handled on the same level. Sub-basements in office buildings are being provided in many cities for the care of cars belonging to tenants of such buildings. It is believed that in the future practically every large office building will be provided with such a garage.

The soil beneath Eighth street is found by the engineer to be suitable for excavation. It is proposed to establish two public comfort stations in connection with the garage. The city is in need of more of these structures. The rental for this garage, it is believed, can be made to abundantly pay for the construction and operation of the enterprise.

Roof Garden Garages.

CHICAGO, ILL.—A crested limousine driven by a liveried chauffeur moved majestically into the private alley of a State street store. In the scented interior sat an impassive-faced woman of the usual indeterminate age. The gowns she wore and the many still unworn had hung in a clothes closet on Lake Shore drive.

The chauffeur "killed" his engine and turned to a fellow clothes rack employed by the store.

"The garage," he ordered pompously.

Then, while a curious throng clogged the alley to watch, the crested limousine moved heavenward on the platform of an outdoor elevator, onto which the car had been driven.

Three hundred feet above the rabble level the elevator was halted at the roof and the limousine was driven over the concrete skypiece of the building into a garage which all but covered it.

The stolid-faced owner of the car was swept into another elevator and floated down to the tearoom.

It would not be wise to say this story is true, but it may come true if the suggestion of Myrtie Ellsworth, 6251 St. Lawrence avenue, is ever carried out. Myrtie's idea was addressed to the Loop Traffic League, of which G. W. Stratton is chairman.

Myrtie says she wants to tell the traffic league just how feasible is her plan to have the roofs of downtown buildings made into garages. She thinks an outside elevator would be an excellent way to relieve traffic congestion.

Mr. Stratton is inclined to believe the suggestion impractical. The executive committee of the league will meet Monday and discuss the traffic question.

POOR "GUY."

If I had an auto

I'd lend it to some guy
Who'd oodles of mazuma
The gasoline to buy.

Then I'd insure the auto
For double its cost price
And when I got the policy
I'd put it safe on ice.

For he who owns an auto
And lends it to a friend,
And fully does insure it
Makes money in the end.

—GENE SKINKLE.

"GOSSIP OF THE GARAGES."

Under this caption the Bloomington (Ill.) Pantagraph discusses all matters of interest to garage men and car owners. The idea should prove of interest to garage men in the smaller cities who could cite this as an example for their local newspapers. The information here given appeared in a December number:

—C. H. Brown, of Lexington, was a garage visitor yesterday.

—J. L. Murray was in Delavan yesterday looking up a prospect.

—Walter B. Whitten, of McLean, has placed his order for a Ford touring car, the late model, delivery to be made within a few days.

—L. R. Northrup, of 409 East Olive street, who is a clerk at the local post office, has placed his order for a Ford touring car, delivery to be made about March 15.

—At this period of the year automobile salesmen find it difficult to interest prospects and not many sales are being reported. There are a number of men who are talking of giving their wife an electric car for Christmas and a few sales are anticipated in this direction. This is about the last word in a Christmas remembrance.

—If you own an automobile and wish to retain the present license number you will have to hurry. There are but two days remaining for holders of numbers to make application to the secretary of state for new licenses if they would keep their 1915 license numbers. After that the licenses will be sent out in the order in which the applications are received. Under the law, holders of licenses may make applications at least twenty days preceding the first of the new year, and, if they desire, may retain their old numbers. The time limit, therefore, is December 11. Many applications and requests for their old numbers have been received at the office of Secretary of State Lewis G. Stevenson, particularly from persons holding low numbers.

—Anybody who has driven a motor car knows that it is harder to start the motor in cold weather than it is at other times. The motor, on account of the cold, is naturally stiffer and must be turned over more rapidly in order to start. On this account the best of cars should be given a storage battery in order to have it do its work properly.

—Garage men, beware! Autoists, attention! There is death in the chamolis strainer. Whenever you filter gasoline through chamolis you are playing hide and seek with one of the deadliest combinations known to man—electricity and gasoline. If your tank is under the seat be careful when you fill it. If you are not, you will be as foolish as the man who looks for a gas leak with a lighted candle. Never strain gasoline through a chamolis. Now, we'll tell you why it is dangerous. Gasoline and chamolis do not get along. They are "incompatible." Let us assume that you are about to fill your tank. The funnel is in the nozzle. A chamolis strainer is in the funnel. The gasoline is turned on and as it pours through the chamolis electricity may be defined as electricity that is at rest. It is an agent neither of construction or destruction, so long as nothing is done to unleash it. Unleash it, knowingly or unknowingly, by brushing a clumsy finger against a natural law, and you have to deal with the most diabolical physical agent known, a force that destroys with the quickness of lightning.

Introducing a New Light Delivery Truck

One of the big objects of GARAGE EFFICIENCY is to discover and present to its readers opportunities for making additional profits.

Profits are derived from concrete, tangible, material things, as well as from the employment of general ideas.

Well, here is a tangible, material, definite opportunity for at least one garage man—or car dealer, they are pretty much one and the same thing—in every city in the country.

A new auto delivery truck is coming on this market. In all probability this is the first announcement of the truck that has been made. To the men who understand trucks—trucks for light delivery service—this one should have a very strong, personal appeal, for to such men this truck represents a profit opportunity.

The truck will be called the New Sheridan Delivery Car. It will be put out fully equipped, which is a new departure, for trucks have been sold in chassis, with bodies built to order, or according to standard specifications.

The ordinary light delivery truck is built to carry 1,000 to 2,000 pounds. The Sheridan will carry 650 pounds, which is more than the average weight of the load sent out by grocers, butchers, bakers and others requiring like delivery service.

The one big feature of the Sheridan truck is the price—\$465, the nearest competition is said to be a truck of similar character priced at \$660. The car, it is said, will actually carry a load of 800 to a thousand pounds, but the rated capacity is 650 pounds.

Thorough tests have been made and the car has lived up to the expectations of its designers. The specifications for the car are:

Motor, 2½x4 in., car geared 5 to 1 on high speed, 12 to 1 on low, and 12 to 1

on reverse. Maximum speed, 30 miles per hour.

Carburetor, Carter; Magneto, Bosh; pressed steel frame; wood wheels, wire optional; two speed selective type transmission; cone clutch; thermo syphon radiator; steering gear, pinion and sector;

Keeping Posted on Electric Lighting and Starting Devices

This is a story that should be of interest to every garage man in the country that operates a repair shop, and to every automobile repair man whether or not he runs a garage.

Improvements in design, construction and operation of motor cars come so thick and fast that lucky indeed is the man that can keep in hailing distance of all of them.

Trouble was brewed for the repair man when electric starting and lighting systems were made a part of motor car equipment. Derangements in themselves were of a minor character, but what they lacked in size they made up in number.

Within the last two years twenty-eight different starting and lighting systems have been developed and used and these systems with their various adaptations make a total of about fifty units. In these fifty units there exist 12,500 possibilities of trouble, each differing from the other, each at a separate point. That proverbial "needle in a haystack" begins to look easy to find when compared with the search the repair man, unaided, must make when repair or adjusting a starting or lighting system.

These troubles and possible troubles in

axles, nickel steel, full floating, cold drawn, heat treated.

Equipment—Two seats, two gas lamps and rear oil lamp, windshield, horn, tools, Pres-to-lite tank.

Wheel base, 104 inches, delivery box 43 inches wide, 55 inches long, 8½ inches high. Complete top with side curtains.

The fact which should appeal to dealers is that now is the time to secure territory. It will be sixty to ninety days before the company is ready to make delivery of demonstration cars.

lighting and starting systems were dumped on the repair man within the short space of three years. In the larger centers fair progress has been made in mastering the intricacies of the various systems. The repair men of the larger cities have been able to get in close touch with the service stations maintained by manufacturers, but the small town man and the isolated city shop have not been in position to profit by the help given.

A Source of Efficient Aid.

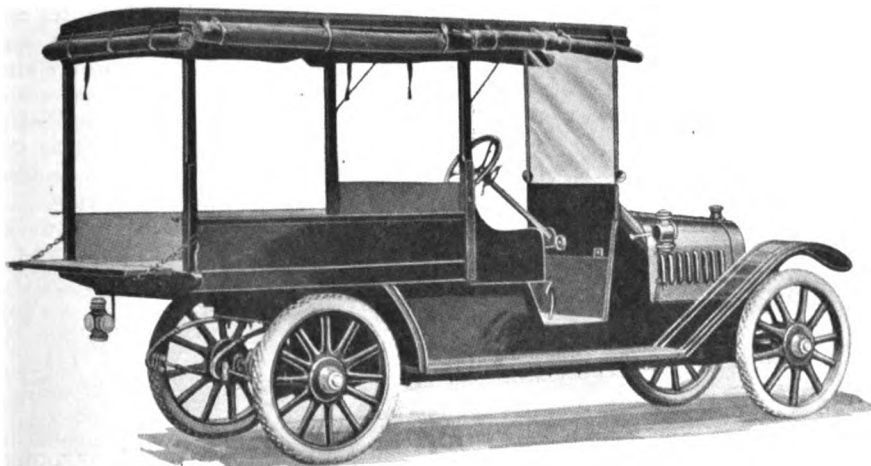
When the source of trouble has been located or the point of failure in the starting system has been found, the work of making repairs usually requires very little time. For this reason the repair man should welcome the aid it is possible to secure in locating trouble. That this aid is available from one source only—so far as now is known—does not minimize its value.

The American Bureau of Engineering, of Chicago, now is supplying a service that enables repair men to locate the cause of trouble in starting and lighting systems on American made cars. The service consists of an instrument, charts, wiring diagrams, instruction books, bulletins and personal advice on difficult problems. With the service, of course, go complete directions for using it.

The value of this service perhaps is shown in its proper light by its adoption by manufacturers that are equipping their cars with electric starting and lighting systems.

Keeping the Car in Commission.

The causes for disorder in any electrical equipment exist. The number is being reduced as fast as possible, the very best engineering skill in the country devoting its attention to this work. But cars, new and old, develop complaints and disorders that must be remedied. To serve the users of cars equipped with electric lighting and starting equipment the manufacturers have put 793 service stations in the field, illustrating their progressive



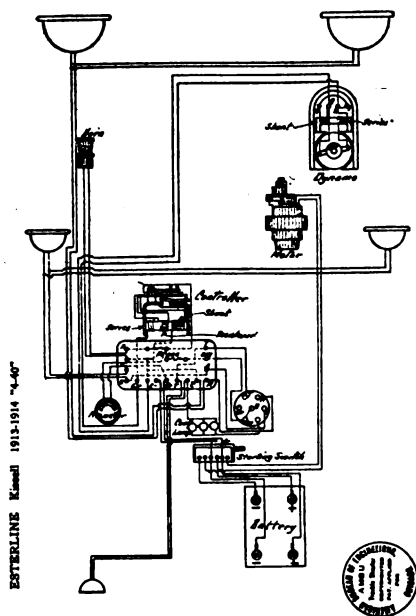
New Sheridan 650-pound light delivery car.

spirit. This great number of places where electrical troubles may be remedied are not able to take care of all the business.

Car owners off the main lines cannot make use of the service station in the large city. The better service the system named "AMBU" enables the local repair man to give saves times, money and trouble all around, keeps the work at home and—what is more to the purpose—keeps the car in commission. Cars are bought to use, not to stand in a repair shop or at home waiting repairs or parts.

"It can't be done," says the skeptic. A Chicago garage man thought "it couldn't be done," but evidently changed his mind before he wrote the following letter:

CHICAGO, ILL.—I want to tell you of the really remarkable success I have had with your Ambu Trouble Shooter. It really



looked improbable to me for this instrument and system to accomplish the work your representative told me it would until I had tried it in actual operation in my own hands. I have had some difficult jobs that otherwise I would have had to turn over to the equipment's service station, and I used to pride myself on my knowledge of electrical equipments. I know I have lost several good customers on account of my taking too long and then find out it was some small thing that, if I had known where to go first, I could have fixed it in a short time. The beauty of your instrument is that it automatically tells me where to go first. I am advertising it now and gradually getting my lost trade back and lots of new customers. I am more than making it pay for itself and I now feel that the price is not high, considering what it does. There must have been an awful lot of work necessary to perfect it.

Now, what I ask is not to place too many of these systems near me because I am getting all the trade around here and cleaning up.

You may refer anyone, provided they are not too near, to me if they want to know how a practical repair man feels toward you people.

I have just finished a difficult job and my enthusiasm in fixing it in so short a

time prompts me to sit right down and write you about it.

Hoping you will have the best of success with this proposition, I am,

Yours truly,

(Signed) C. J. HENDRICKS.

3941 Washington Boulevard.

The automobile repair man has been asked to learn in two years what other men have acquired by diligent study extending over a period of years. This system should help out. It is being adver-

tised to car owners and a garage displaying an "AMBU" sign should draw all the electrical troubles that come that way.

This is a business story, written for the purpose of directing attention to a means of eliminating much of the worry the garage man inherited when electrical starting and lighting systems became the part of the ordinary equipment of a motor car. If it causes you to subscribe for this service, that is your look out.

Talks by the Garage Men

Repairing Automobiles.

ROCKFORD, ILL., Dec. 30.—Editor GARAGE EFFICIENCY: We notice on page 18 of the December number of your most excellent trade journal an article signed "A CAR OWNER." We wish to say that we believe he was unfortunate because we do not believe that in the average case there would be the trouble he tells about in getting a fly-wheel.

Very recently we had a car come into our shop Thursday afternoon with a fly-wheel torn all to pieces, with part of the braces on the frame taken away at the time of the fly-wheel bursting, some of the side of the body gone, a section of the steering wheel rim broken off, the floor boards splintered, as well as the pedals and some minor parts of the car.

We turned this car back to the owner Saturday afternoon with complete repairs and in perfect running shape, with the new parts touched up with paint and varnish to match the old parts, at an expense of \$103.45. We do not know whether or not this was an "exorbitant" price but we do know that the owner was more than pleased and very much surprised when we telephoned him that his car was ready.

We do not believe that this was an especial job as we calculate to handle any job that comes into the shop in the same manner and approximately the same time.

It is often the fault of the manufacturer in not shipping parts promptly that causes the delay.

We are glad to have this matter brought to the attention of the average garage owner of our country and believe it will be beneficial to the garage owner and customer. We do not believe, however, that the average owner has as much trouble as the one in question, or that the average repair shop can give good repairs in a prompt manner.

Wishing you all the success during the coming year, which we believe you are entitled to, we are

JOSLYN AUTOMOBILE COMPANY,

By Jud S. Joslyn.

The Price of Gasoline.

SAN FRANCISCO, CAL., Dec. 23.—I read your article on gasoline and know from our experience here on the coast that you have presented the situation in the right light.

You have given the real reason for the fluctuating price of gasoline and unless new oil fields are discovered, goodness knows how high our gasoline prices will go.

I am already assured by our gasoline friends that the price very shortly will be 20 cents on the coast.

I have in mind at present the possibilities of President Wilson's idea of taxing gasoline and horse power. We doubtless will pass a resolution protesting against such action.

It occurs to me that this will be a good thing for the Associated Garages of America to take up. Our protest would be much stronger if all the states and localities were duly organized. If that law goes into effect the garage man is bound to feel the tax and this may wake him up to the necessity of getting busy to protect his interests.

Another thing which I believe the Associated Garages of America will have to father is the Lien Law. A great many of the states will be unable to pass this lien law unless a good deal of publicity is given the question. Our own governor is very much opposed to the lien law and while we succeeded in getting a law through both houses and up to him for approval, he did not hesitate to veto it and any further efforts along this line, while he is governor, will be useless. If ten to twenty states had lien laws possibly he would be less opposed to the measure. No doubt other governors will take the same view.

I want to take this occasion, however, to wish you a good Christmas, and I predict for 1916 the most successful year for GARAGE EFFICIENCY.

A. D'ETTEL,

Secretary-Treasurer Garage Owners

Protective Association.

Write us about your experiences. Your ideas are wanted by others interested in the same questions that interest you.

With the People Who Make Supplies

Ring Wisdom.

"It is impossible to find an end to Ring Wisdom," quoth the Man at the Garage.

A grain of sand is very small but our well known sea shores are largely made of sand and there is sufficient remaining to form the sand dunes of Michigan and other sections and to furnish the plasterers with all they need. It stands to reason, therefore, that a very large sand factory must be working overtime in some part of the world.

A piston ring is larger than a grain of sand but even the men identified with the automobile industry hardly conceive of a great factory devoting itself exclusively to the manufacture of piston rings. The big, new factory of the Burd High Compression Ring Company, at Rockford, Ill., is now in commission. The building is 190 feet long by 129 feet deep, contains 19,000 square feet of floor space.

When the new factory was placed in commission a prominent business man asked an official of the company: "What else do you folks make besides piston rings?" Being told that no other product was made he said: "It is almost incredible you should require a factory employing 250 men to produce a little contrivance that may be held in the palm of the hand."

In the automobile field alone there are now about 2,500,000 cars in operation and the average is said to be 16 piston rings per car. The average for 1916, it is said, will be 18 rings per car, on account of the number of eight and twelve cylinder motors. During 1915 it was estimated there were 40,000,000 piston rings in service. This year the total is expected to reach 51,000,000.

The automobile field is one of seventy-five or more fields in which piston rings are employed and some of these fields

give promise of even greater development than the one in which the garage men are interested. So, after all, it is not strange that this great factory should devote itself to the manufacture of piston rings.

Calorite Spark Plug Insulation.

"Now where is that fellow with the material that is to insulate me from worry?" demanded the Man at the Garage.

A new insulating material, known as Calorite, has been discovered and adopted by the Hartford Machine Screw Company in the manufacture of the Master Spark Plug. Before being accepted the material was subjected to tests that were truly terrific.

One of these tests was to heat the spark plug to a white heat then plunge it into cold running water, a test so severe that it never before had been attempted. This alternate heating and cooling was repeated ten times without effect on the Calorite insulation or sign of fracture.

With a view to breaking down this material the spark plugs were heated to a bright red heat, then instantly plunged into cold water, the alternate heating and cooling being repeated twenty-six times without fracture.

The ordinary porcelain insulator was subjected to the same test, but broke before reaching a white heat and without being put in the water at all.

When subjected to an electrical test Calorite withstood 10 per cent higher voltage than the finest porcelain.

The necessity for an insulating material that will stand up under the most brutal abuse and the most terrific heat is well illustrated by the many spark plug failures in the automobile races last summer. The high temperature cracked the porcelain insulators and

caused the drivers to sacrifice time, so that both driver and automobile lost prestige.

With Calorite standing up to the test that has been made it looks as though the days of spark plug trouble were over.

Fond of the Doh.

"Sure, I'm after the Doh," admitted the Man at the Garage.

Tire Doh was put on the market six years ago. The product was not an experiment and it was not placed on the market to meet a "long felt want," although it did. The producers realized the need of material that enables motor-



The New Home of the Atlas Auto Supply Company, Chicago, Ill.

ists to make quick tire repairs while en route.

An evidence of the success of this business is found in the growth in sales and from the further fact that the consistent increase in demand caused the producers, the Atlas Auto Supply Company of Chicago to seek larger quarters.

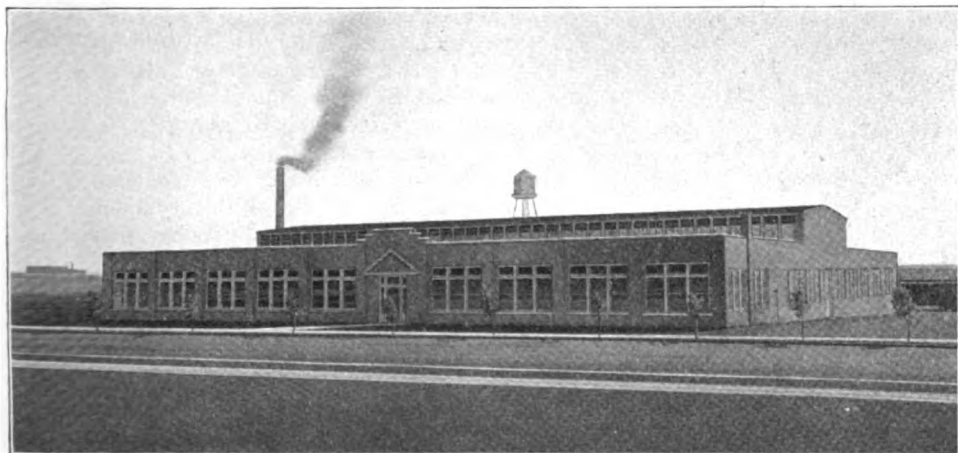
To the garage owner Tire Doh is of interest as an accessory to be carried in stock and sold. Some concern will sell it, why not the Garage man?

An outfit consists of a can of Tire-Doh cement and a can of Tire-Doh. Tire-Doh is a plastic, rubbery substance of about the consistency of putty, that is worked in and around the puncture and sets quickly, becoming as tough and elastic as the best rubber.

A test case was made with a tube showing a tear thirty-seven inches long, torn by careless removal from the casing. Permanent repairs were made, and this test shows the possibilities of the compound.

New sizes of Tire-Doh are being placed on the market. The standard outfit retails at \$1.00, the Junior outfit, the new size, at 50 cents.

The manufacturer of Tire-Doh also is marketing a metal polish, body polish, the Day tire valve and other products of a similar character. The new quarters of the company are located at 656-660 West Austin avenue, Chicago, Ill.



The New Plant of the Burd High Compression Ring Company at Rockford, Ill.

Vulcanize Your Troubles.

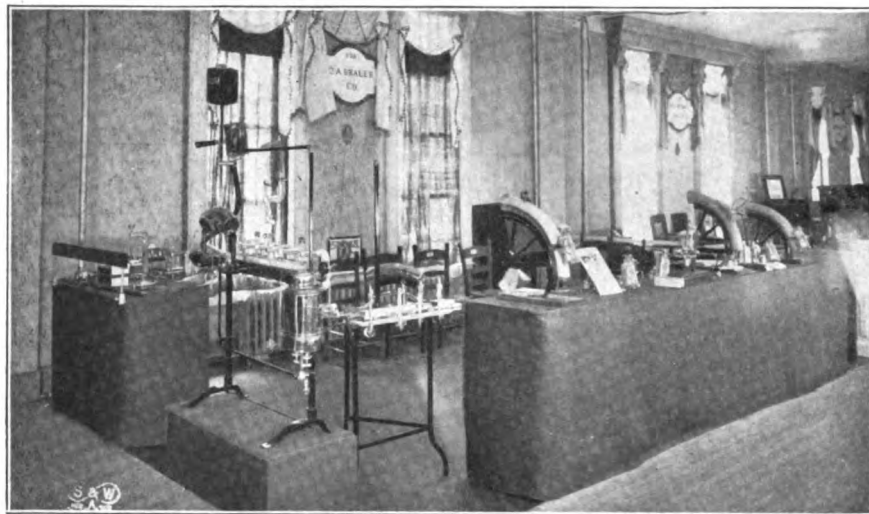
"Will some kind soul kindly furnish me a vulcanizer that will seal my punctured pride?" pleaded the Man at the Garage.

Vulcanizers, to meet the needs of every class of users, from the small pony outfit employed by the motorcyclist,

extract from an address by Dr. Steimetz, of the General Electric Company, in which he states that "The existence of these properties is an additional proof that the chemical reaction is completely reversible, that is, that the battery does not age, has no definite life, but its life

Johnson's Prepared Wax should be used to polish the car after it has been well cleaned. It forms a thin, protecting coat over the varnish, adding years to its life. It covers up mars and scratches, prevents checking, sheds water and imparts a perfectly hard, dry, glasslike finish which will not collect dust.

Johnson's Prepared Wax makes a



The C. A. Shaler Exhibit at the New York Show.

selling at retail for \$1.75, to the complete equipment for the public garage, costing \$60 or more, were attractively displayed by the C. A. Shaler Company of Waupun, Wis., at the New York Automobile show.

The types shown included gasoline, gas, alcohol and electric. The exhibit was in charge of R. E. Malone, known to the accessory houses of the United States from Maine to California and known as the star of the C. A. Shaler Company's force of expert salesmen.

Commercial Vehicle Batteries.

"We know all, or a part of all, there is to know about making electricity, and know something about how to use it, but we don't know what it is, and are not worrying over that fact," observed the Man at the Garage.

Perhaps the nearest thing to perpetual motion is the right kind of a storage battery. The force or energy stored within it will last as long as the ingredients producing the force last.

The Edison Storage Battery Company of Orange, N. J., has issued a bulletin on the use of the Edison Nickel-Iron-Alkaline battery in commercial vehicle service. This bulletin enumerates some points of superiority of the electric wagon in delivery service and the effect this battery has had on increasing its simplicity, durability and reliability and also in reducing the cost of maintenance.

A brief description of the Edison cell is given and its characteristics are defined as long life, great mileage, ruggedness, service efficiency, cleanliness and ability to withstand extremes of temperature.

A striking feature of the book is an

is limited, theoretically, only by mechanical destruction."

The book is profusely illustrated, well printed and should be of value to central stations, electric garages, dealers and others concerned in the promotion and sale of electric commercial vehicles.

In the Wash Room.

A mirror-like polish on a car adds to the pleasure and prestige of motoring and increases the market value of any machine. With but very little effort any of the boys around your garage can keep the finish of cars just like new by using Johnson's Cleaner and Johnson's Prepared Wax.



This cleaner really cleans—it entirely removes all spots, stains, discolorations, scum, road oil, tar and grease from body, hood and fenders. Even those spots that are ground in—mud freckles—and surface scratches which you thought were permanent—will disappear like magic under Johnson's Cleaner. And it doesn't injure or scratch the varnish—simply cleans and prepares it for the wax polish.



"wash" last twice as long. *Old cars* require both Cleaner and Wax—the Cleaner two or three times a year—and the Wax every six or eight weeks. *New cars* need only the Wax—to protect the varnish.

Garagemen you can "get in strong" with your customers and make a bunch of extra money if you will adopt the "Johnson Method"—clean two or three of the cars entrusted to your care with Johnson's Cleaner and then polish them with Johnson's Prepared Wax—and see if your customers object to paying a good price for having the appearance of their cars improved 50 per cent.

Seals Pores.

"Will this Air-In-All seal punctures in my pride?" anxiously inquired the Man at the Garage.

A compound that seals punctures and porous tubes of its own motion, without removing the tire, that puts the tire in condition so that it may be termed punctureless, is one of the commodities offered garage men this month. This is not a new product. It is manufactured by the Woodbridge Chemical Company of New York City, and is offered for sale by S. W. Granbery, western distributor, 2127 S. Michigan avenue, Chicago.

One of the larger tire companies states that the use of this compound does not affect its adjustment policy in any way.

It is claimed a driver with Air-In-All treated tires may leave on a hundred-mile journey over rough roads and return with every pound of air the tubes contained when the car started, no matter how many nails, tacks and other tire destroyers are picked up en route. This is a wonderful claim and should be investigated.

RATE CARD.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Car sales	Gas.	Oil and grease.	Access.	Parts.	Livery.	Storage.	Vulc.	Labor.	Storage bat-teries.	Prest-O tanks.	Wash.	Tires and tubes.	Misc.
Charge % to departments.....	.40%	.02%	.02%	.05%	.02%	.05%	.10%	.05%	.10%	.02%	.02%	.02%	.10%	.03%
Maintenance .....	.30	.01	.01	.10	.03	.02	.25	.02	.10	.01	.01	.01	.11	.02
Insurance .....	.40	.02	.02	.12	.12	.03	.03	.01	.07	.01	.01	.01	.13	.02
Interest on money invested.....	.30	.02	.02	.02	.01	.01	.40	.02	.07	.01	.01	.01	.10	.01
Rent or floor space.....	.25	..	..	..	..	..	..	..	.75	..	..	..	..	..
Machinery and tools.....	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07
Office equipment.....	.40	.02	.01	.10	.10	.10	.02	.02	.05	.02	.02	.02	.10	.02
Telephone and telegraph.....														

monthly statement becomes a great burden. We employ a loose leaf statement ledger for customers' accounts, a loose leaf bill register for all invoices of goods purchased and an expense record for determining the profit or loss on each month's business in each department.

How the System Works.

All day tickets, both cash and charge, received on account and cash paid out are run through a cash register. This takes proper care of the cash and gives one a record of all charge

to use it. Take a letter file which opens on the edge, put in extra leaves of heavy paper, so as to make thirty-one divisions, number them from one to thirty-one. If a bill is due for discount on the 10th place it in pocket No. 10. Pay all bills each day as they come due, then file these bills in another file marked "Bills Paid."

Finding the Balance.

With the tickets and books so far described, a garage business could go on indefinitely and might be losing money in some

No. _____

Vulcanizing

Algona Auto and Machinery Co.

NAME.....

ADDRESS.....

Tube

Size.....

Case

Kind.....

Blow out.....

Patch.....

Patch.....

Valve base.....

New Valve.....

Plunger.....

Date.....191... Promised.....191...

Remarks.....

PRICE { Cash.....

{ Charged.....

Vulcanizing Ticket No.....

Algona Auto and Machinery Co.

ALGONA, IOWA

No.

Algona Auto & Mch. Co.

Storage Ticket

Mr.

Car

Time in.....

Time out.....

Cash Charge.....

Gas

Oil

Repairs

Cash-Charge.....

Present this check when you want your car

No.

Storage Ticket

Algona Auto & Mch. Co.

Time in.....

No.

TIRE RECORD

Kind.....

Size.....

Type.....

Date Rec d.....

Sold To.....

Address.....

Date.....

Cost.....

Selling.....

Cash.....

Charge.....

Salesman.....

NO.....

No.....

Kind.....

Size.....

Type.....

sales. The cash is balanced every morning and the charge tickets are posted directly into the statement ledger. A cash register is not necessary. All this posting of tickets is done with a carbon under the paper so that we get a duplicate of each statement for each month. At the end of the month the originals of the statements are torn out of the ledger and mailed to the customers. All our statements are out on the second or third day of the month. The duplicate statements are all filed away and likewise all cash and charge tickets. Each customer's tickets for each month are filed in an envelope so that the original ticket can be easily found at any time until these tickets are destroyed. We keep them for a year. With this arrangement and with proper attention, we have every customer's statement ready for him at any time, with the exact amount due at the close of each day.

Turning now to the second part of the system. Goods received are entered into a receiving book. All invoices are checked from this book. The invoices after being entered in our bill register are placed in a remittance file so that they will be paid in time to get the discount. You can easily make a remittance file which will save all your discounts if you want

departments all the time. An inventory at the end of the year may show a profit on the business as a whole, but you never know where the leaks are. We therefore have devised the third part of our system, or our expense account. We have the same divisions on the cash register as on this chart each of which is printed after each sale on the sales strip. We have divided our business into fourteen departments, as follows:

Sales, Gas, Oil and Grease, Accesories, Parts, Livery, Storage, Vulcanizing, Labor, Battery Charging, Presto Tanks, Washing Cars, Tires and Tubes, Miscellaneous.

We have also the departments of Maintenance, Building, Machinery and Tools, Office Equipment.

Now in making sales in each of these departments there is always a certain expense attached. Car sales, for instance, has the cost of the cars, freight, unloading, washing, gas and oil, salesman's salary, salesman's expense, service and a number of other items, all of which must be charged directly to car sales. In addition to this, "Car Sales" must stand a certain proportion of interest on borrowed money, rent, insurance and other overhead expenses. These same things are true of all other departments. Each department must be charged with the expense

which belongs to that department, such as Labor, Invoices, Freight and Express, together with a certain percent of Interest, Rent and Overhead Expense. This overhead expense we call Maintenance.

In order to get at the proper division of labor, each man is required to make out a time card each day. This is in addition to the other tickets. This time card must show ten hours' labor

Algona, Iowa.....191.....

Mr.

Address.....

IN ACCOUNT WITH

ALGONA AUTO & MACHINERY CO.,

Gal's Gas.....

Oil.....

CASH.....35.....

CHARGE.....

BOOK ACC'T.....

SALESMAN.....

No.....

Storage Battery Charging

Name.....

Address.....

Started.....

Price.....

By.....

NO.....

Storage Battery Charging

Name.....

Address.....

Started.....

Finished.....

New Acid.....

Cost.....

Charge.....

Repairs.....

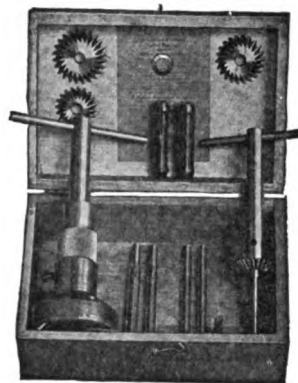
Algona Auto & Mach. Co.

divided among the various departments. Each man makes out a time card every day and apportions his ten hours out to one or more of the fourteen departments according to the class of work he is doing. This time card must agree with the cash and charge tickets. For each of the fourteen departments we have an expense sheet which are renewed for each month in the year. Labor is taken from time cards, or if we have an accessory clerk, his whole time can be charged to this department

Every Garage Should Have One *What?*

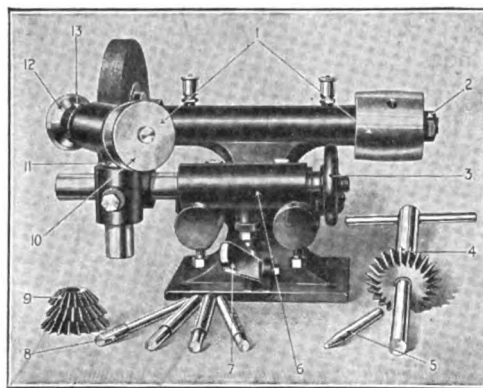
Why, a Fosnacht Valve Reseater

The FOSNACHT is the most convenient tool for cutting iron valves and valve seats quickly. It reseats valves in one fourth of the time it takes to grind them.



The Nasco

is a brother to the Fosnacht, but is operated by engine drive and is principally for grinding steel valves.



Either Set Furnished Complete for

\$30.00

LIBERAL DISCOUNTS TO DEALERS

Parcrad Motor Appliance Company

700 Michigan Boulevard Building

CHICAGO, ILLINOIS

JUST PUBLISHED

and you need it—the most frequently needed and by far the most useful book on automobiles ever written.



Automobile Repairing Made Easy

By Victor W. Page, M. E., member of the society of Automobile Engineers, Author of the "Modern Gasoline Automobile," etc.

Here are one thousand and fifty-six pages of valuable information, one thousand specially made engravings on five hundred plates, including ten folding plates.

This book is a comprehensive, practical exposition of every phase of modern automobile repairing practice.

The only book of its kind, and it fills the bill.

You will find it outlines every process incidental to motor car restoration. A very definite and accurate idea of plans for workshop construction, suggestions for equipment, the power needed and the machinery and tools necessary to carry on the business successfully. It tells how to overhaul and repair all parts of all automobiles.

This book also contains special instructions on electric starting, lighting and ignition systems; tire repairing and rebuilding; autogenous welding, brazing and soldering; heat treatment of steel; latest timing practice; eight and twelve cylinder motors.

It is a reliable guide to mechanical efficiency for all repair men. You will never get stuck on a job if you have this book. A complete index makes for easy reference.

SPECIAL—Readers of Garage Efficiency are given first chance at this book of books. The **Price is \$3—net**. Shipment will be made by express, **charges collect**—or—send us \$4 and we will **send prepaid** and include a year's subscription to Garage Efficiency.

Send that order today while the impulse is warm.

BOOK DEPARTMENT

THE GARAGE PRESS

608 South Dearborn Street

CHICAGO, ILLINOIS

In order to spread such expense as maintenance, interest, rent, or floor space, interest and depreciation on machinery and tools, interest and depreciation on office fixtures, telephone and telegraph, over the various departments, we have adopted what we call a rate card, mentioned above. The rates on this card might vary with different conditions but it will serve as a guide to any one who is working out such a system.

For each of the fourteen departments we have an expense sheet for each month in the year. We will take accessories for example.

Invoices are easy to get but we should rather use cost of goods sold.

Labor is taken from time cards, or if we have an accessory clerk his whole time can be charged to this department. Express, freight, etc., can be entered easily, but the percentage of maintenance, interest, rent, insurance, etc., etc., must be figured from the rate card.

Returning again to the accessory chart you will notice that all the expense is in the first columns, in other words all invoices, labor, rent, etc., is charged, and returns both cash and charge are out in the sales column. Footings can be had at any time, but are preferably made at the end of the month. In this case we have

Total sales.....	\$258.96
Total expense.....	230.18

Profit.....\$ 28.68

It may be interesting to show you the results of one month's work in several different departments.

Gas sales for October.....	\$336.26	
Gas used in new cars.....	35.70	
Gas used in motorcycles.....	.35	
Gas used in shop.....	1.27	
Gas used in livery.....	5.61	
Total	\$379.09	\$379.09
Gas purchased	\$294.33	
Labor	16.76	
Percentage of interest.....	1.70	
Percentage of floor space.....	2.38	
Percentage of maintenance.....	7.40	
Percentage of tel. and tel.....	.40	
Percentage of insurance.....	.10	
Total	\$323.07	323.07

Gain	\$ 56.02
Tire sales for October.....	\$741.79
Cost of these tires with 12½ and 5 and 5 cash. \$600.00	
Freight, labor, advertising, and a per cent of interest, floor space, maintenance, insurance, etc.	102.73

Making a total expense of.....	\$702.73
Total sales	741.79

Profit \$ 39.06

Car parts usually show a loss. Twenty per cent is not enough, especially for the distributor, who has to turn these parts to sub-agents at a profit of 5 per cent to 10 per cent. Such a gain will not cover overhead expenses, and pay for handling the correspondence.

Storage at 50 cents per night and \$2.00 to \$5.00 per month will show a loss, but at \$7.00 for all steady storage we are able to show a profit of \$70.95 for October.

Livery shows a profit or a loss depending on the driver.

Vulcanizing shows slight gains.

Contrary to the usual opinion, our repair shop always shows a profit.

Total receipts for October..... \$275.39
 Cost of labor—overhead, etc..... 214.61

Gain \$ 60.78

Storage batteries will show a loss unless very carefully handled.

Prest-O-Lite tanks always show a nice margin of profit.

Washing may be a profitable business, but we have failed to find it so. For the month of October, which, by the way, was a dry month, we took in \$19.25, and had an expense of \$19.10, leaving a profit of 15 cents.

It is my opinion that labor should be at least 75 cents per hour, storage 75 cents per night, and \$7.00 to \$8.00 per month.

We should have longer discounts on tires and repair parts, and owners of new cars should not get as much *free service* as they are getting now.

WINTER WORK.

Use of motor cars during the winter months is steadily increasing. Anti-freeze solutions for the radiator, tops for the touring car, heating devices, better spark plugs and a better understanding of the possibilities of gasoline in cold weather are keeping many cars on the road twelve months in the year. This is true of both pleasure and business cars.

Because of lack of understanding there usually is more work on a winter car than on one driven during the summer months. There are many more causes of disorder. The cars should have closer attention.

Winter cars are one excellent reason why the garage man should not hibernate during the winter months. Other and more imperative reasons exist. Winter is the best time in the world in which to give your customers' cars a general overhauling and put them in shape for spring use.

It is not strange that half of your customers' knowledge of automobiles is confined to the demonstrable facts that the car will run or it won't.

If it will run, that is all there is to it; if it won't run, then it's time to send the car to the garage for repairs. The intermediate condition of the car between the point of perfect order and the condition that prevents the owner from getting a kick "out of 'er," is of very little moment to hundreds of car owners.

To induce an owner of this class to send his car to your garage for repairs before he absolutely is forced to do so requires tact and diplomacy. But it is work that is worth while both for the owner and the garage man, for the owner because the work can be done at a lower cost and at a time when the car is idle; for the garage man because it furnishes profitable employment for members of his crew at times when otherwise they would be idle.

A suggestion on how to get this business and how to keep it is given by a garage man of central Illinois. That suggestion is worth while and should receive the careful consideration of every live garage man who receives and reads GARAGE EFFICIENCY.

Museum Manager—Where's the human fly?

Attendant—Can't perform today. His wife's been swatting him.—*Baltimore American.*

Coming to the Show?

If you garage men who attend the conventions the latter part of this month or come to the show

Want to Learn

something worth while, come in and get acquainted.

I sell rims exclusively.

I can always save you money on rims and oftentimes when I have job lots, I will sell you at 25 per cent off wholesale cost.

Just to make it worth your while to call, I'll hold in stock, until the Auto Show opens, four well known makes of rims which I can sell you at a discount from regular prices.

You will be glad and I will be glad, if you call.

W. P. KASTNER

RACING RIM TIRE LUGS

2125 Michigan Avenue Chicago, Illinois



**We furnish help free of charge
to all Employers**

**Chauffeurs, Auto Repairmen,
Tire Repairmen, Garage Foremen,
Floormen and Assemblers.**

Chauffeurs Employment Bureau

(Largest in the Middle West)

3626-28 South Halsted Street

Phone Drover 6441

CHICAGO

A Combination Offer for Your Ford Customers

Four R & M Aluminum Alloy Pistons fitted with R & M Conform Piston Rings for only . . . **\$30.00**

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938 Fort Wayne Avenue

Indianapolis, Indiana

Progress in Building The Lincoln Highway

It is a difficult matter to awaken and maintain public interest in America in any project. That difficulty was overcome by the officials of the Lincoln Highway Association. Possibly conditions and the shifting of public interest to outdoor sports, particularly the trend of sentiment toward touring America, coupled with the continued efforts of the officers of the Lincoln Highway Association, are responsible for the wonderful progress made during the last two years.

The first year's work resulted in the selection of the route and its partial marking for identification. It is not a small task to mark or chart 3,384 miles of miscellaneous roads in the United States, and to have the work done so thoroughly that the touring motorist need never inquire for direction or seek to ascertain his whereabouts.

The parent organization back of the Lincoln Highway is not interested in the actual work of road making. It is not building the road, but seeking to educate the people to build it for their own satisfaction, pleasure and profit. Village, township, county, municipality and state have participated in the work. The organization has been aided by contributions, ranging from a few cents to thousands of dollars, from hundreds of its members who are advocates of good roads and who believe the only way to get good roads is to build them.

Automobile clubs, good roads organizations, boards of commerce and other civic organizations have aided, locally, in selecting and permanently identifying this great highway which begins at New York and ends at San Francisco.

Since the announcement and dedication of the route it is estimated that \$2,250,000 have been spent in road building and bridge construction.

The Highway Today.

From Jersey City to Trenton, in New Jersey, the highway is built of concrete or macadam.

In Pennsylvania many mountain roads have gradually been reconstructed. Efforts have been made to abolish grade and bridge tolls and there now is a demand to eliminate all tolls. The state has appropriated \$225,000 to aid in this work. In other ways Pennsylvania is credited with having spent \$510,000 on improvements on the Lincoln Highway during the last eighteen months.

The route of the Highway has been completely marked through Ohio and four-fifths of the road has been hard surfaced. About \$350,000 has been spent and \$610,000 has been raised by bond issues put out by the counties.

Indiana has completed or under construction sixty-eight miles of concrete roads. South Bend contributed about \$200,000 to this work, Elkhart built ten miles of concrete roads and Fort Wayne seven miles.

Between Morrison and Sterling, Illinois, a concrete section sixteen feet wide has been built with cement con-

tributed by the American Cement Association and allotted under competition. Sentiment for hard surfaced roads in Illinois is growing rapidly.

Iowa made exceptional progress. The highway has been graded, crowned, drained and dragged in the very best manner across the entire state. This work necessitated cuts and fills of 15 to 30 feet in some sections. The roadway is thirty feet wide and is prepared for hard surfacing. The counties through which the highway passes have spent about \$250,000, more than half during 1915. Before the work of hard surfacing is undertaken an amendment to the state road laws will have to be secured.

A vast amount of grading, leveling, widening and straightening work has been accomplished in Nebraska. A bridge over the North Platte, at North Platte, cost \$50,000. Permanent concrete bridges and culverts are being put in throughout the state. Local county organizations are maintaining the dirt roads in excellent shape. Many miles of concrete roads have been put down.

During the last year Wyoming has spent about \$200,000 on maintenance work on its section of the Lincoln highway. Sweetwater county, with a population of 12,000, has been looking after 152 miles of the highway and has spent \$100,000 on the route.

Utah and Nevada, states of magnificent distances between settlements, have pushed the work vigorously. The two states have invested about \$75,000 in improvement work. Nevada is the fourth state of the Union in area and has almost the smallest population. The government still owns 78 percent of the land.

California is a state where all believe in good roads and all are ready to build them. From Lake Tahoe on the Nevada-California border, to San Francisco, the Lincoln Highway is practically a boulevard. This section of the highway is the most wonderful of the entire 3,384 miles.

A complete official guide, giving detailed route and touring information, was issued during 1915. The organization has derived considerable revenue from the sale of the guides. It is proposed to continue the publication, getting out revised editions each year.

The great object of the organization is to construct a highway and to maintain it in condition for use 365 days of each year. The magnitude of this enterprise is not well understood. What it portends for America is only dimly realized even by those directing the affairs of the organization.

Touring America.

"See America First," is another way of saying: "Keep American dollars on duty at home." The one satisfying way to see America is to use a motor car.

What it means to the people of this country is set forth in part by a recent report from El Paso, which city is said to have received the profit from \$50,000 spent during the summer by motorists. The average caravan passing daily through that city contained 12 to 20 cars and each party spend \$15 to \$20 during its stay in El Paso. Many motorists spend several days in the city,

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if they fail to duplicate any part of any make of automobile or truck, foreign or domestic, submitted to them. That sum will be paid to the person sending the order.

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They have the largest and best equipped plants in the United States for the repair or reproduction of automobile parts.

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taking one or more of the many side trips around El Paso.

Money is spent for garaging cars, for repairs, gasoline and supplies, for hotel accommodations, meals, souvenirs, clothing and patronage of other local business enterprises. Many motorists carry camp equipment and stock with provisions for their daily encampments.

Better roads means more travel. The completion of the Lincoln Highway and the further improvement of the southern route will give the motorist a great circuit of travel, visiting all portions of the country and mingling with the people of all sections.

A Broad Review of Garage Lien Law Status

[An address delivered at the Des Moines (Iowa) Convention of the Iowa Retail Auto Dealers' Association by R. H. Nesbitt, General Counsel.]

In reference to the proposed Garage Man's Lien Law, I wish to call your attention to the recent enactment of the legislature of the State of Michigan, being File No. 312 of the Public Acts of the State of Michigan for the year 1915, which by reason of the terms of the enactment became the law of the State of Michigan on the 19th day of May, 1915. The wording of this enactment is as follows:

MICHIGAN LIEN LAW.

An act to establish, enforce and protect by lien the rights of garage keepers who furnish labor or material for storing, repairing, maintaining, keeping or otherwise supplying automobiles or other motor propelled vehicles.

Section 1. The very garage keeper who shall, in pursuance of any contract, expressed or implied, written or unwritten, furnish any labor, material or supplies, shall have a lien upon any automobile or other motor propelled vehicle stored, maintained, supplied or repaired by him for the proper charges due for the storing, maintaining and repairing thereof, and for gasoline, electric current or other accessories or supplies furnished or expenses bestowed or labor furnished thereof at the request of or with the consent of the registered owner of the licensed plates of said motor propelled vehicle, and such garage keeper may detain such automobile or motor propelled vehicle at any time it may be within their possession within ninety days after performing the last labor or furnishing the last supplies for which such lien is claimed.

Section 2. If such charges are not paid within ninety days after performing services of a claim of lien together with an itemized statement of account with the registered owner of the license plates of said automobile or other motor propelled vehicle, said garage keeper may advertise and sell said automobile or other motor propelled vehicle at public auction in the same manner and after the same notice required in the sale of property seized on a chattel mortgage to the highest bidder to satisfy said claim, and the garage keeper may bid on the vehicle so offered for sale. Any surplus received at said sale shall, after all charges of said garage keeper have been paid and satisfied and all costs of sale have been deducted, be returned to the owner of said automobile or other motor propelled vehicle.

Section 3. Whenever in the act is used the term garage keeper it shall be construed to include all persons who for hire or reward publicly offer to store, maintain and repair automobiles and other motor propelled vehicles and to furnish accessories and supplies for automobiles or other motor propelled vehicles or the transfer of persons or merchandise upon and over the public highways and streets, providing any municipalities within are enforced in laws or ordinances relative to the regulations and licensing of garages. No person shall be entitled to avail himself of the provisions of this act unless he shall during the period of the whole term covered by the claim for lien have been duly licensed and have fully complied with all the laws and ordinances relative to the licensing of garages.

This enactment, while it has many desirable features, is defective in a good many particulars. The definition of what constitutes a garage owner within the meaning of the act is rather indefinite and to come completely within its terms one to avail himself of this act must be a storage man and engaged

in transferring persons or merchandise as well as a repair man and one who furnishes supplies. This act also makes no provision for protecting the lien as against good faith purchasers, and furthermore makes no provision for filing a notice or claim of lien which protects the garage owner, neither does it provide for a proper adjustment of a disputed claim and in this particular I think the law is fatally defective.

The law was vetoed by the governor of Michigan and the attorney general recommended against the passage of the bill because of a number of defects contained therein.

New York Lien Law.

I find the New York law to be as follows:

Section 184. The Laws C, No. 33.

A person keeping, managing or leasing for the storing, maintaining, making or repairing of motor vehicles as defined by Article II of the Highway Laws, and as in connection therewith, stores, maintains or repairs any motor vehicle or furnishes gasoline or other supplies therefor at the request of, or with the consent of the owner, whether such owner be a conditional vendee or a mortgagor remaining in possession or otherwise, has a lien upon such motor vehicles for the sum due for such storing, maintaining, keeping or repairing of such vehicles or for furnishing gasoline or other supplies therefor and may detain such motor vehicle at any time it is lawfully in his possession until such sum is paid.

This law, while it aids the garage keeper to some extent, was held to be junior and inferior to the lien of the mortgagor, when the auto was found in the possession of the original owner and mortgagor.

The Supreme Court of the State of New York in the case of Thourot vs. Delahoye Implement Company, 125 N. Y. Sup. 827, held as follows:

The keeper of a garage where repairs are made on motor vehicles loses his lien provided for by Statute in New York as against one holding a chattel mortgage by voluntarily delivering possession thereof to the owner. Such delivery shall not divest the lienor of his lien.

There is a decision of the same state to the effect that if the property had remained in the hands of the garage keeper, his lien would have been paramount to that of the mortgage holder.

Lack of Protection in Illinois.

By examining the laws of the State of Illinois, Chapter 82, Section 1, of the year 1913, I find a provision for perfecting a lien against boats, barges or any other kind of water craft for repairs, painting or other services rendered upon such articles and this lien is perfected by filing a statement of the same with the Clerk of the Court in a manner very similar to that provided by the statutes of this state for filing a Mechanics' Lien on real estate. This law also provides that the party who owns the property may require the one holding the lien to bring it on for hearing within thirty days after service of written notice, and if the lien holder fails to bring it on for hearing within that time, his lien is forfeited. It also provides that when a lien is forfeited or canceled, the lien holder within ten days after service of written notice must cancel said lien or pay a penalty of \$25 for such failure.

The garage keeper has no common law lien for keeping or storing for the owner's use and a lien of this kind depends upon continuous possession of the property and would be destroyed the first time the owner took the auto from the garage. So held in the following cases:

Smith vs. O'Brien, 46 N. Y. Misc. 325; 94 N. Y. Sup. 673.

Grinnell vs. Cook, 3 Hill (N. Y.) 485-92.

38 Am. Decision 663.

McFarland vs. Wheeler, 26 Wond. (N. Y.) 467-474-475.

Jackson vs. Cummins, 5 W. & W. (Eng.) 526-522.

Berry on the Laws of Automobiles. Sec. 209.

I am of the opinion that a law could be enacted in this State which would be a combination of the better parts of the

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Effective Advertising

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stand out strik-
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IF your garage is on a dark street, an electric sign will cause it to stand out, and make customers for you. If your garage is on a well lighted street, an electric sign will give your garage special prominence among the other progressive business places.

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laws of the States of Michigan, Illinois and New York and by which the lien of the garage keeper could be preserved and enforced. I believe that in the same enactment we could provide for licensing a mechanic in every garage doing business in the State of Iowa and entitled to the provision of this enactment, and providing in such law, that all work done in said garage must receive the O. K. of inspection by such licensed mechanic and that by this means, better service would be obtained and be much more satisfactory in every way to the public generally as well as garage owners.

Standardization of "Rules of the Road" Suggested

Law merely is the public's acceptance of practice recommended by our legislative bodies. This country probably has as many dead laws as live ones and seems to be proud of the fact that the people are greater than the law, the people themselves being the law givers.

When law is reduced to a matter of common consent and common practice it requires very few officers to enforce its observance. There should be a law of practice, a law of the road, governing the operation of automobiles.

Customs and practices differ in different parts of the country, for the obvious reason that many drivers elect to be laws unto themselves, and to adopt any expedient that will enable them to "get by." In reality they will be able to get by much easier if custom be standardized.

Each state and city has its special traffic regulations and it would be difficult to have them all harmonized. It is well, however, to educate drivers to their common-sense duties and responsibilities.

Judge Sabath, of the motor car court of Chicago, has issued a new list of do's and don'ts for automobilists. These two lists form a working basis. With adequate revisions, additions and subtractions they could be changed into rules applying nationally and if accepted and acceptable to the car driving public, will be religiously followed. Some of the recommendations apply strictly to local traffic and are based on local conditions and traffic regulations.

Garage men are advocates of "Safety all the Time." The thinking members of the industry will be glad to complete the list and later to aid in its thorough distribution. Adequate rules will be given wide publicity by the press, but the rules to be worth while must be adequate and usable throughout the country.

Here is Judge Sabath's list. What changes have you to suggest?:

Please Do:

- Always drive on the right side of the street.
- Pass all vehicles except street cars on the left.
- Use best lamps and light them at sundown.
- Procure your state license at once.
- Procure your vehicle tax at once and save court costs.
- Observe the traffic laws strictly.
- ObeY officers on crossings.
- Avoid arguments with officers, although you may think they are wrong.
- Use dim lights on front of car.
- Report to the police or to the automobile court all speeders.

Use tire chains on rainy days.

Signal drivers back of you in case you intend to turn or stop your car.

Stop your car at all boulevard crossings.

Have all lights tested.

Watch your speedometers and have them tested every ten days.

Procure and study the city ordinances and the laws of the state pertaining to vehicles.

Stop ten feet back of a car while same is discharging or taking on passengers.

Pay special attention to the laws pertaining to speeding.

Please Don't:

Don't drink intoxicating liquor or permit your chauffeur to do so while operating an automobile.

Don't drive faster than the law allows.

Don't permit your exhaust to smoke.

Don't cross a boulevard until you come to a full stop.

Don't pass a street car on the left side.

Don't keep your muffler open at any time or place.

Don't use glaring lights.

Don't drive on the wrong side of the street.

Don't keep up a conversation while driving or permit your chauffeur to do so.

Don't pass a street car while passengers are boarding it or being discharged.

Don't drive on street car tracks.

Don't permit any one under the age of 18 years to operate your car.

Don't permit your car to stand in the loop more than thirty minutes.

Don't operate a car until you are absolutely competent.

Don't permit your chauffeur to speed, especially while you are in the car. You are just as guilty as he and may be prosecuted also.

Don't carry children or women on your motorcycles.

ADVERTISING FOR YOUR BUSINESS.

Advertisements are printed in GARAGE EFFICIENCY for the sole purpose of reaching the garage owner. They are direct talks to garage men by concerns that want the garage trade, that is your trade.

You have not finished reading GARAGE EFFICIENCY until you have read the advertisements.

In this issue you will find a number of new ones, and you will find, also, nearly all of the other reliable manufacturers and dealers who are reaching out after the garage business.

They are soliciting your co-operation, are ready to work with you, and can make money for you. Read the advertisements—buy the products advertised, is the best and easiest way to make money for yourself.

CARE OF BATTERIES.

AURORA, ILL.—The Coats Garage is impressing on their customers the necessity of adequate care for all batteries. In the big display store there is a full line of Willard batteries. This garage is the service station for the Willard batteries. Its customers are being educated to understand that the life of a battery is determined by the plates used, and the care the battery receives. The Willard Company, of Cleveland, is insisting on monthly inspection of its batteries in use in Aurora, furnishing this service free.

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Michigan Storage Batteries have been adopted by the Detroit Garage & Station Operators' Association, and by the existing arrangement STATE MEMBERS can profit by applying to the Purchasing Committee of the Detroit Association, at 518 Grand River Avenue, Detroit.

Our batteries will fit into the space of any of the standard makes.

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Light
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Make your cars run smooth
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A Pennsylvania Product

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for price. We have it.

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Agents Wanted. Write for our propo-
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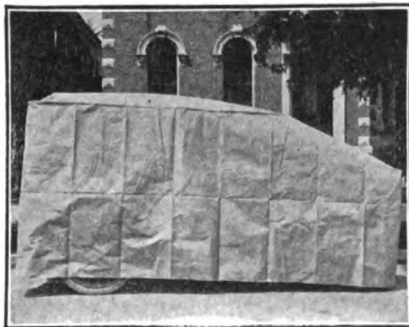
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KENNEDY AUTO STORAGE COVERS also protect tires and preserve the life of the rubber by excluding light.

BE THE FIRST in your locality. Get further particulars today; interesting profit and sales easily made. Do not delay—delay means lost sales. Write to

The Kennedy Car Liner & Bag Co., Shelbyville, Indiana

Identification Fight at Joplin, Mo.

Eight Joplin (Mo.) garage managers or owners recently were ordered to appear in municipal court to answer charges of violating a new "auto reporting" ordinance passed October 27 by the city commissioners, which requires all garages to make a daily report to the police department, giving a detailed description of every automobile brought into the garage for repair, storage or sale, and also the description of the driver.

The order to appear in court brought a storm of protests from the garage men, who consider the ordinance a "rank piece of foolishness," to quote Mr. Stults, "on the part of the commissioners."

"To fill out the blanks given us by the city," said Mr. Stults, "would be an impossibility. The blanks require that we make note of the make, size, model, color, lights, motor number, car number, license number, kind of tires and horn of every car brought to us for storage or repairs. They also require that we take the owner's name and address and the age, color, height, weight and style of dress of the driver.

"To come anywhere near filling out these blanks correctly, we would have to have two extra men in the garage to do nothing but attend to the ordinance's requirements, and that in itself would be an expense of at least \$1,250 a year to each garage.

"A man would have to be a car expert to be able to correctly name the model of every car, and to find the various numbers asked for—with the exception of the license number, of course—a thorough examination of the body and the engine of the car would have to be made to find the numbers, usually concealed beneath a film of oil or dirt. The numbers seldom are put in similar places on two different cars.

"But that is the easiest part of the job.

"Supposing a man comes in here to have repairs made on his car. I ask him, 'What is your name?' He replies, 'None of you ——— business.' I ask, 'Your age, weight, height, etc.?' and if I receive a civil answer it will be because the man thinks me insane and should be dealt with gently.

"It have made no attempt to fill out the blanks because I knew it to be impossible. And I think that very few Joplin garage men have done so.

"I am called the 'father of the ordinance' by some garage men. I am not. The police got the idea from a record book which I kept for my own use, in which I put down the make, size, license number and time of each car brought in. I have been of some little assistance to the police in this way, and the idea was conceived to 'simplify' matters by having us make a daily report.

"Most Absurd Yet."

"Perhaps they thought they were making things easier for us, but in fact they have made law-breakers of us all."

J. H. Barrett of the Right Way Garage expressed

the belief that the new ordinance will not stand up "under fire."

"The council has passed countless automobile ordinances that have done no good and have not been enforced," he said, "but this one is perhaps the most absurd ever passed."

"We are going to make a test case of this trial, and I am of the opinion that it will be shelved immediately, alongside the 'muffler cut-out' ordinance."

The Fire's Out.

A controversy between several Joplin garage men and city officials over an "auto reporting" ordinance passed October 27 by the city commissioners, was settled amicably November 20 at a conference attended by six garage men, Mayor McIndoe, Chief of Police Milligan and Charles A. Patterson, commissioner of public utilities.

City to Have Local Information.

Garage men present at the conference were: Harry Packer, Century Garage; Thomas A. Stults, Stults Auto Company; John H. Barrett, Right Way Garage; George Bebermeyer of the B. B. Garage; J. C. Jones, Joplin Garage, and George Hubbard of the Guarantee Garage.

The proximity of the time for procuring city licenses by all local automobile owners is given as the city's reason for dispensing with the reports on cars regularly stored in the garages, as all information necessary in the tracing of stolen cars will be obtained when licenses are issued, thus giving the city a complete description of every locally-owned motor car.

In his agreement to require reports on only transient cars, Mayor McIndoe stipulated that locally-owned cars transferring their patronage from one garage to another shall be classed as "transient," and one report made on them.

Mr. Packer brought up the question of car sales by demonstrators from Kansas City, St. Louis or other cities, and asked that the city authorities make a thorough investigation of such demonstrators to prevent possible sales of cars in Joplin by persons not licensed.

Mr. Packer said that it is the intention of the garage men to have uniform record books printed and distributed among the various garages, in which a record of every car brought into the garages will be kept and descriptions taken. This will be separate from the reports given the city, and will be for the use of the garage men, although the books will be open for examination by city authorities at any time they may wish.

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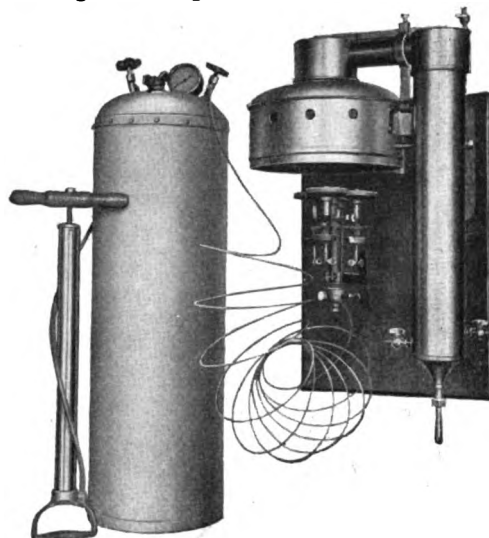
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Increase their life and capacity by using only distilled water when flushing or washing.



Gasoline or Kerosene operated type.

Several hundred garages are pleasing their customers by using distilled water in their batteries.

It is a splendid Talking Point in going after new business.

Your profit from the sale of distilled water will quickly pay for the Still. CAPACITIES—One-half to 15 gallons per hour.

Operated with steam, gas, gasoline or kerosene.

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Double-Acting Curb Pump (Patented)

Safe — Quick — Accurate — Economical

American Double-acting, Continuous flow gallon measuring Pump delivers gasoline at the rate of 14 gallons per minute, which is as fast as most "Five Gallon" Pumps and costs much less. Accurate Measurement. ACCESSIBLE Valves.

Fully equipped with Filter, Meter, Hose Draining Valve. With or without Electric Light Fixture.

Storage Tanks, any capacity desired.

Portable Wheel Tanks
With Double-Acting Pump
The Best Made

All kinds of Storage Outfits for Gasoline and Oils, Paints, Varnishes, etc., for Public or Private Garages, Stores, Factories, Railroads, etc.

Write for Bulletins, giving complete information, prices, etc.

The American Oil Pump & Tank Co.
CINCINNATI, OHIO



BALL BEARINGS REGROUND

Mr. Car Owner

Do not throw away your worn bearings have them reground at a small cost. Guaranteed equal to new.

Mr. Garage Man and Dealer

Favor your customers by keeping their repairs bills as low as possible

Write for our Catalogue "F"

AHLBERG BEARING COMPANY

2636 Michigan Avenue

Chicago, Ill.

New York Minneapolis Los Angeles Boston
Cleveland Detroit St. Louis

Garagemen
Read What Others Say About
Vanderpool
Vulcanizers

Pleased with Vulcanizer got from you.—O. W. Jordan, Beeville, Tex.

Vulcanizer is working fine.—Earl Gray, Saskatchewan, Can.

The Vulcanizer does very nice work. Am well pleased with it.—J. F. Merino, Winkelman, Ariz.

Catalogue Sent On Request.

VANDERPOOL COMPANY
Springfield, Ohio

Get Ready NOW

Write or Dealers' Prices on Shanhouse Motorsuits.



You can sell one to the owner or driver of every car that comes to your garage.

Sell them to the men that work in your garage or other mechanics.

An assorted stock calls for a small investment. Make arrangements for yours now—prepare for the coming demand.

There is not a motorist in the country who can afford not to carry a Shanhouse one-piece Motorsuit in his car.

We are selling to your customers. Will divert the trade to you if you will stock Shanhouse.

You can offer Shanhouse Motorsuits to your customers on the "Money-back-if-not-satisfied" plan.

Special inducements to all who put in stocks during the Winter months. *Write TODAY.*

WM. SHANHOUSE SONS

ROCKFORD, ILL.

Will Aid Police.

He said the garage men are desirous of aiding the city in every way possible in tracing car thefts and recovering stolen cars, and will work in conjunction with the police to make successful car thefts impossible.

The meeting of the garage men for the purpose of completing the organization of a local garage men's association was not held as scheduled.

Thomas H. Stults, a member of the committee on by-laws, stated that the meeting has been postponed until information is received from garage men's organizations in a number of cities over the district, to whom the local committee has written for copies of their constitutions and by-laws.

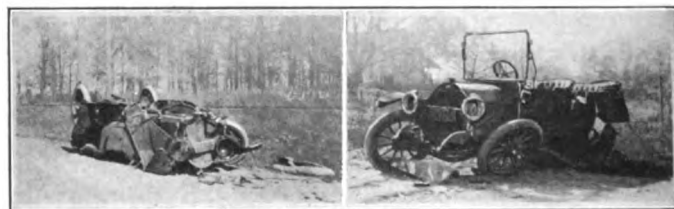
Garage Men Organize.

Since the inception of this fight the garage men have been brought together to protect their interests. The outcome has been the organization of the Auto Garage Club with Thomas Stults as president and L. E. Blurton as secretary. Members are: Mr. Stults, Stults garage, 409 Virginia avenue; Mr. Blurton, Joplin Auto Company, 618 Wall street; John H. Barrett, Right Way garage, First and Joplin streets; Walter Davis, Overland garage, Second and Wall streets; George Sebermeyer, Second and Joplin streets; Verne Norton of the Norton Taxicab Company, 11 West Fifth street; J. C. Jones, 531 Main street.

CARELESSNESS PRODUCES SCRAP.

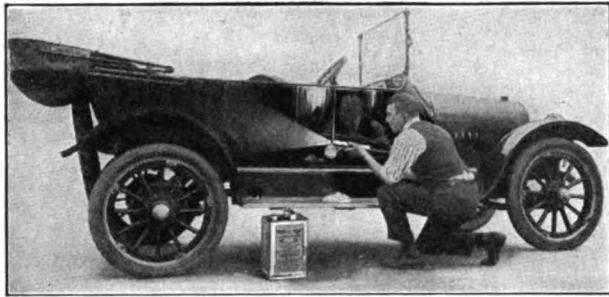
This engraving, supplied by the B. F. Goodrich Company, Akron, Ohio, shows what happens to motors when driven at forty miles an hour through dust that obscures the vision and makes it impossible to see ahead. Dust was blamed for the accidental crashing of two cars near Franklin, Ind., rather than the element of recklessness on the part of the drivers.

The outcome of such driving is junked cars and junked riders. The failure to use common sense, lack



of knowledge of rules of the road, or the possession of knowledge that is not used, is responsible for accidents of this character.

What the motorists of the country need are strict, enforceable "Rules of the Road." The Goodrich Company has compiled rules which, if followed would eliminate the majority of mishaps of this nature. This country needs rules of the road that every motorist should learn, rules that are enforced. There is no greater reason for the unnumbered accidents in this country than there is for our unparalleled fire losses.



**Always
Clean Your
CAR**

THE WONDER-MIST WAY

Hear our Story, Watch *our Advertising*
and see why people buy **WONDER-MIST**

Use it and see why they repeat.

We celebrate our second Wonder-Mist anniversary by shipping the first Chicago car-load to H. M. Hooker Company, wholesale Paints, Oils and Glass.

This records wonderful progress of a wonderful article. We want you to get some of this car-load, take in a stock, make a display and make some of the money our proposition offers. Remember—Wonder-Mist cleans without water, removes grease and tar and protects the finish.



THE WONDER-MIST Co..

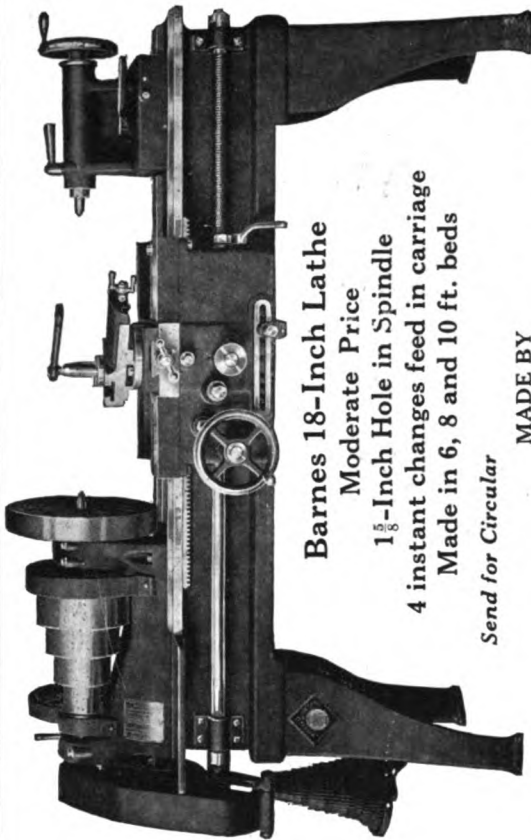
162 No. Dearborn Street

CHICAGO

Boston

New York

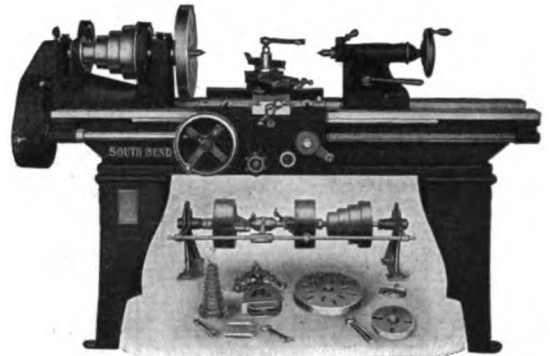
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Moderate Price
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4 instant changes feed in carriage
Made in 6, 8 and 10 ft. beds
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Regular Equipment, as Illustrated Under Lathe, is Included in Price.

The practical Lathe for the Machine and Repair Shop.

13-Inch Lathe, Complete,	\$185.00
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15 " " "	230.00
16 " " "	294.00
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Send for free catalog giving prices on the entire line.

HOW TO RUN A LATHE
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CONTAINS OVER 100 ILLUSTRATIONS AND 300 SHOP KINKS
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SOUTH BEND LATHE WORKS
510 E. Madison St. South Bend, Ind.

Money Making Machines for Every Shop

For reboring old worn and scored Ford Cylinders. Enables the small shop to rebores cylinders as well as the largest shops with expensive machinery.

Makes the Ford Motor like new. Rebores Ford Cylinders is a profitable business in any section.

The Davis Milling Attachment and Compound Table

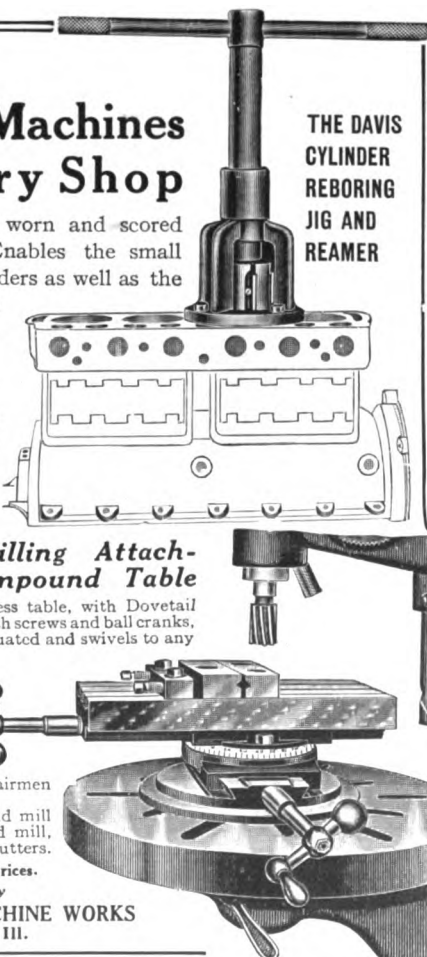
Clamps to any drill press table, with Dovetail Cross Slides, operated with screws and ball cranks, by hand. Saddle is graduated and swivels to any angle. Table is slotted for clamping down work, chuck or vise.

Especially adapted for small shops such as blacksmiths, repairmen and automobile garages.

It will cut key seats and mill cams. For use with end mill, fishtail cutter or formed cutters.

Write for Circulars and Prices.

Manufactured by
THE HINCKLEY MACHINE WORKS
Hinckley, Ill.



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CYLINDER
REBORING
JIG AND
REAMER

LIPMAN GARAGE PUMPS

Reliable—Economical—Durable

MOST COMPLETE LINE BUILT

FREE AIR SERVICE OUTFITS

**WAR
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Write for
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**New
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Ready**



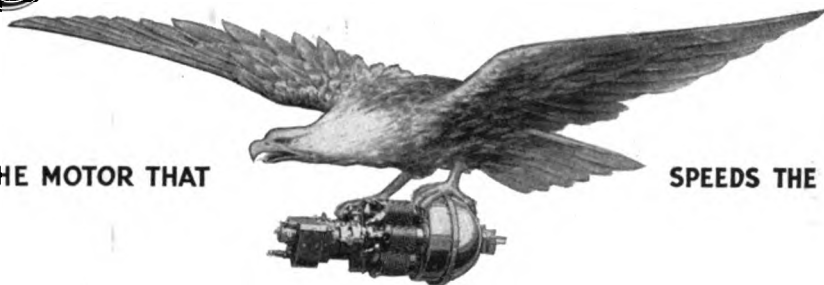
MODEL P4-ST
LIST PRICE . . . \$150.00

LIPMAN AIR APPLIANCE CO.
888 Pleasant Street, BELOIT, WIS., U. S. A.

The Eagle-Macomber Motor Car Co.

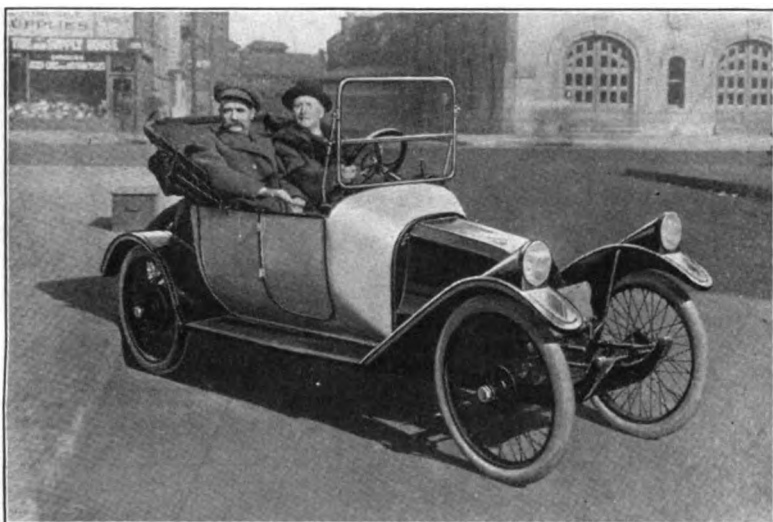
"THE MOTOR THAT

SPEEDS THE EAGLE"



A Car You Can Afford to Own

40-50 Miles to the Gallon of Gasoline



Parties in car—A. C. Lake of Orland, Calif., on left; A. H. Freese of Ekalaka, Montana, at wheel. Photo was taken March 27th near the corner of Fourteenth Street and Michigan Boulevard, Chicago (around corner from store of Eagle-Macomber Motor Car Co., the builders of these cars).

Three-quarter front and side view of an EAGLE LIGHT CAR equipped with a 12-14 H. P. Macomber Rotary Engine. This car, with interchangeable commercial body for storekeepers, etc., also attachable coupe top, self-starter, spare wheel, tire and tube, electric lights, battery, reserve feed tank under cowl for steep grades, speedometer, clock, leather toilet case and articles, etc., etc.—virtually three cars in one—\$790.00.

WRITE FOR PRICES ON SPECIAL ONE CAR EQUIPMENT; ALSO FOR STANDARD TREAD FIVE-PASSENGER EAGLE LIGHT AUTOMOBILES WITH MACOMBER 28 H. P. ENGINE. DEALERS' APPLICATIONS CONSIDERED IN ORDER RECEIVED.

"Will Replace All Other Gas Engines"

That is what many of the best and most favorably known gas engine authorities and mechanical engineers say for the Macomber Rotary Motor.

An Extraordinary Photograph

This is a view of the Eagle Light Car chassis before completion with a 12-14 H. P. Macomber Rotary Engine revolving at 1,500 r. p. m. The camera that took this picture is capable of instantly registering the slightest jar or movement, and can catch a bullet in the air so that it appears to be standing still. Its speed is 1-1000 of a second.

This photograph, however, was a time exposure, which would permit registering on the negative every movement, no matter how slight. This chassis, standing on inflated tires without any load (less than three pints of gasoline in the tank) would make jarring due to engine action show clearly on the negative. This is a print of the negative without any retouching of any character.

The Macomber Rotary Motor used in this car revolves as smoothly as a spinning top, and better demonstration of the absence of vibration would be difficult to obtain.

SPECIFICATIONS of this beautiful car are as follows:

WHEEL BASE—104 inches.

TREAD—36 inches. Takes the parallel horse tracks on country roads, usually the smoothest part of road; also sleigh tracks in snow.

MOTOR—12-14 H. P. Macomber Rotary. Weight 115 lbs.

IGNITION—Any standard high-tension magneto.

CARBURETOR—Any standard carburetor.

TRANSMISSION—Selective type, sliding gear; three speeds forward and reverse.

DRIVE—Shaft drive, full floating type.

FRONT AXLE—"I" beam drop-forged Vanadium steel.

REAR AXLE—Three-quarter floating type, with annular ball bearings.

FRAME—Pressed steel; channel section semi-underlung; i. e., under forward axle and over on the rear, thus giving highest riding qualities and very low center of gravity.

SPRINGS—Semi-elliptic front, full elliptic rear; set at ten degree angle.

BODY—Pressed steel, with French type hood, fenders, running boards, baked black enamel.

STEERING GEAR—Fifteen-inch wheel, worm and worm gear, left hand drive.

SEATING CAPACITY—Staggered seats, for two passengers and space for extra folding seat for third person. Heavy tufted upholstery; ample leg room, including space for luggage.

WHEELS—Wire, double laced, automobile (not motor cycle wheels). C. C. rims.

TIRES—28 in. x 3 in., auto construction, non-skid type.

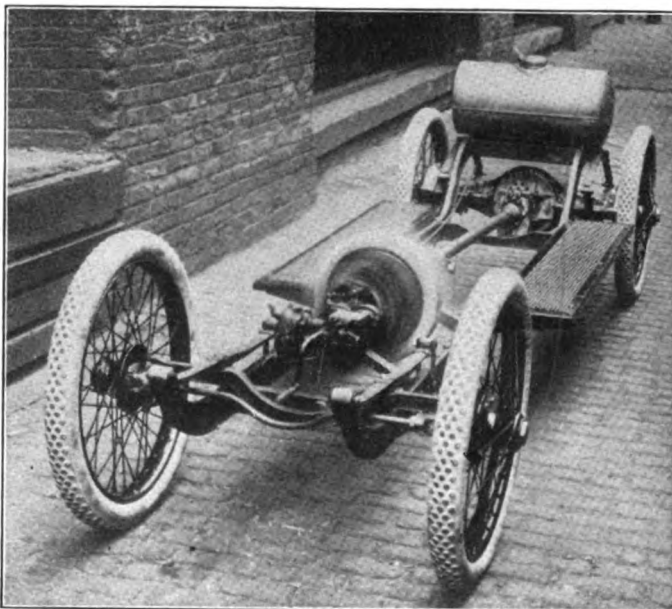
TANK—Ten gallon capacity, on rear of car, gravity feed.

ROAD CLEARANCE—Ten and three-quarters inches.

WEIGHT—About eight hundred fifty pounds, complete.

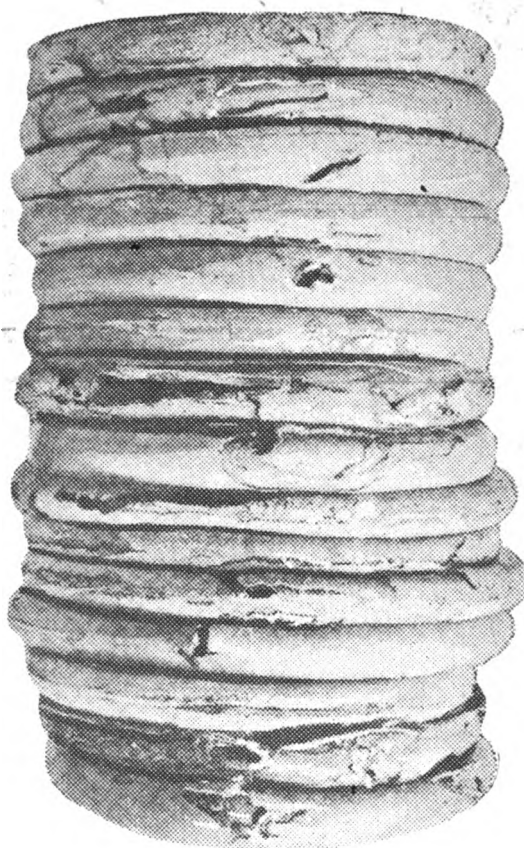
SPEED—Three to fifty miles an hour on high gear.

GASOLINE CONSUMPTION—Forty to fifty miles on one gallon gasoline.



EAGLE-MACOMBER MOTOR CAR COMPANY,

1350 South Michigan Boulevard,
Chicago, Ill., U. S. A.



\$3 for Each and Every One of These Junk Tires

Quantity, size, style, make or condition cuts no ice. We want them all, no exceptions. HOW DO WE DO IT?

By our remarkable process, we rejuvenate old tires and utilize them, just as they are, which makes them worth about three times as much to us as they are to a junk man. We will forward a \$3.00 standard vulcanizer complete like illustration for every tire you send in. This vulcanizer is a standard size well made product, made by a manufacturer whose name would be easily recognized were we not bound by contract to withhold it.

Gather all your junk tires together and exchange them for a stock of standard make vulcanizer without laying out one cent. These vulcanizers are complete in every detail and come completely equipped with chain, repair gum, tube attachment, etc. Send in your junk today by pre-paid freight or express and receive one standard make \$3.00 vulcanizer for each tire you send in.

BEAR TIRE & SUPPLY CO.

1231-33 S. Wabash Ave., Chicago

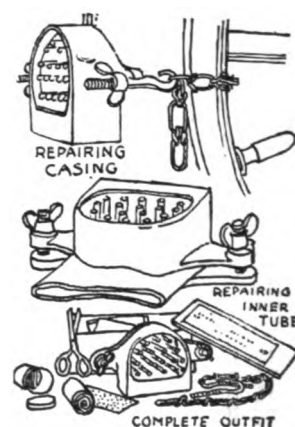
Manufacturers of

Bear-Vulco Tires and Sole Distributors of Bear Cat Ford Starters which retail at \$9.75—Bear Day Lite Search Light at \$4.75—Bear Naber Shock Preventers at \$9.50 per Set of Four.

EASTERN AND SOUTHERN BRANCH:

205 Granby Street,

Norfolk, Va.



Modern Garage Service

WHETHER it be an electric or gas garage nowadays, many things are expected by customers that were not thought of a few years ago. Garage operators have been compelled to assume obligations and liabilities in the handling and delivering of cars to customers they never dreamed of. For instance, hikers were only for electrics just a short while back, now gas garages use them to hold their trade. We know hikers have accidents causing sometimes severe losses to the garage owner.

Our ILLINOIS GARAGE OWNERS' POLICY completely covers the needs of the garage owner, even with a livery in connection. It is but one policy but it covers NINE hazards.

Write us for further information.

AMERICAN AUTOMOBILE INSURANCE COMPANY

HARRY M. McCONNELL, General Agent

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Chicago, Illinois

WANTED AND FOR SALE

ARC RECTIFIER BARGAIN.

For Sale—One large, General Electric Multiple Arc Rectifier, equipped to charge six electric cars at one time. It cost \$1,200.

A real snap for some one.

Will sell for quick cash, f. o. b. Peoria, for \$500.

Crown Auto Company,
828-830—904-906 Main Street,
Peoria, Illinois.

FOR SALE—IOWA GARAGE.

For Sale—A modern garage, thoroughly up-to-date in every respect. Brick building 60x80, built two years ago. Equipped in thorough manner throughout; steam heat. Address Box 105, Independence, Iowa.

FOR SALE—SECTIONAL VULCANIZER.

For Sale—Miller Sectional Vulcanizer with clincher and straight side irons, two to five inches. With two broken places that can be welded good as new. Cost \$150, will sell for \$35.

THE PEOPLE'S GARAGE, MARION, IND.

FOR SALE—SHALER VULCANIZER.

For Sale—A Shaler Steam Vulcanizer for tubes and casings. Cost \$60. Will sell for \$25. ALGONA AUTO & MACHINERY COMPANY, Algona, Iowa.

PROFIT OPPORTUNITIES.

How many of them are you overlooking? Get in touch with the profit detector. A postcard will bring complete information. Address G-1, care Garage Efficiency.

AN AID TO LARGER SALES.

WANTED, SOLICITORS — A means of getting into closer touch with your trade has been devised. If you want to get right with your customers and possible customers, write today for complete information, giving your territory, the lines you are carrying and references. No get-rich-quick scheme, but an excellent chance for the right sort of solicitors. Address GE-3, care Garage Efficiency.

GARAGE FOR SALE.

It looks good on the surface—fine location, heavy patronage, chance for great profits, but—when the prospective buyer comes in he will want to know how deep the "pay-dirt" goes. What the books show should be a true indication of what the business is worth. If your books don't tell you the truth and all the truth, write GARAGE SYSTEMS COMPANY, Rockford, Ill.

A FEW REAL SNAPS.

For quick cash sale we have the following supplies at the unheard of prices quoted:

1913 four cylinder 45 H.P. rubber motor, with latest type Remy magneto and Stromberg carburetor, completely overhauled in our shop.....\$100.00
Two H.P. stationary gasoline engine, in guaranteed first class condition, just the engine for furnishing power for a medium sized shop..... 40.00
One 35x5 Non-skid Knight casing, guaranteed 5,000 miles 20.00

Crown Auto Company,
828-830—904-906 Main Street,
Peoria, Illinois.

We Grind Cylinders

By specializing, we make the following ridiculously low prices on regrounding cylinders:

1 Cylinder.....	\$10.00
2 Cylinders.....	15.00
4 Cylinders.....	22.50

Prices include new pistons and rings. Work neatly and promptly done and absolutely guaranteed.

ALLEN & CURTISS CO.
MISHAWAKA, IND.

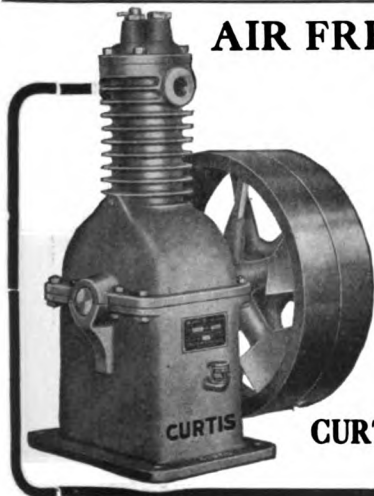
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A complete treatise on the automobile for owners, operators and repairmen. Answers practically any question relative to the care, repair and operation of a car. Over 500 pages, fully illustrated, including a chapter on Self-Starters and Lighting Systems. Flexible Leather Binding—

Price..... **\$1.50**

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FOR EACH SIZE TIRE**

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With its controlled splash lubrication will guarantee clean air—the compressor also has unloading device, air cooling device, inspectible valves, bearings adjustable for wear and is made in five sizes.

Curtis Correct Pressure Tire Filling Station

insures your customer's tires—gives them longer life and increased mileage—fewer blow-outs and fewer punctures and places the wear where it belongs.

Write your jobber for full particulars or write us.

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NEW YORK OFFICE, 530 CHURCH ST.



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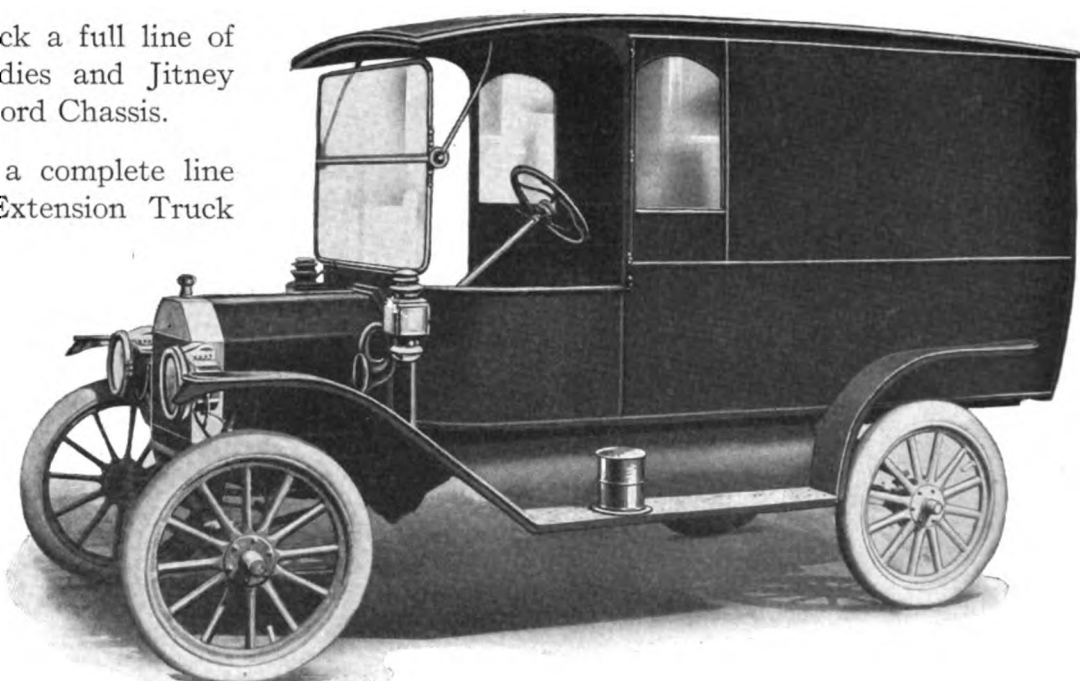
CENTURY COMMERCIAL BODIES

We carry in stock a full line of Commercial Bodies and Jitney Busses for the Ford Chassis.

We also make a complete line for the Ford Extension Truck or any other chassis.

Write for our twenty-page Commercial Body Catalog and Dealers' discounts.

We will make you some attractive prices.



CENTURY AUTO TOP & SUPPLY COMPANY

44 to 56 East 26th

CHICAGO, ILL.

HERE'S A BOOK YOU NEED

A complete Ford Instruction is also added.

Read the subjects treated below and bear in mind each and every subject is fully treated in a simplified manner with clear illustrations.

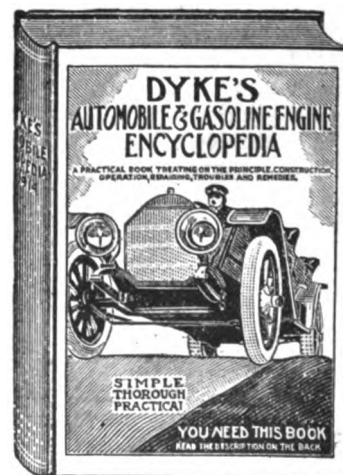
Step by step the book takes you through construction engines; 4, 6, 8 and 12 cylinder, carburetion, valve timing, ignition timing, and all up-to-date electric systems—repairing, adjusting, etc. The repair subject is very complete and extremely useful. Hundreds of illustrations on this subject alone.

This book is compiled by A. L. Dyke, the man who invented the first auto supply business, manufactured the first valve feed carburetor, and published the first practical book on automobiles in America.

The book is endorsed by Elwood Haynes, Charles Duryea, Lord Montagu (founder of boulevards in London), Barney Oldfield and other notables. It is read by the faculty of five Automobile Schools.

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A Teacher Guide and Reference on everything pertaining to motoring. Simple as the A. B. C's. It's worth ten times its cost if only placed on the shelf and used as a reference.

Renewed fourth edition now ready. 690 pages. 1750 illustrations.

Price \$3.00 (Add 25 cents if wanted prepaid)

SPECIAL This book and one year's subscription will be given for the price of the book \$3.00.

If you are already a subscriber, then give the subscription to a friend and get the book.

Address Book Department, Garage Press, Transportation Building, 608 So. Dearborn Street, Chicago, Ill.

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VOI. VI. FEBRUARY, 1916. NO. 2.

GARAGE EFFICIENCY

THE NATIONAL GARAGE MONTHLY

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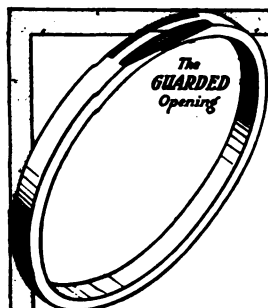
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The Engineering Departments of the Packard Motor Car Co., Haynes Automobile Co., Saxon Motor Car Co., and others equally as well known have gone to the very bottom of the Piston Ring subject. Every device of any promise has been given consideration. Experiments without number have been tried. Exhaustive tests in shop, laboratory and on the road have been made and the verdict has invariably been in favor of

BURD HIGH COMPRESSION RINGS

One well known engineer whose company has standardized on *Burd Rings* has said, "Extensive experiments have actually proved that this ring will keep the compression of the motor up to where it should be, and keep the oil down".

That's the whole story. When you keep the compression up, you maintain full capacity, secure more power and speed; and when you keep down the oil you overcome ninety per cent of motor

troubles which are either directly or indirectly traceable to carbon accumulations resulting from burned oil within the combustion chamber.

The piston ring that has been tried and tested and found capable of increasing the efficiency of such motors as the Packard, Haynes, Saxon, etc., will be found equally efficient in repair work.

Try it under our absolute warranty.

BURD HIGH COMPRESSION RING CO., Rockford, Illinois

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Chicago, Ill. 1427 Michigan Ave.
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Kansas City, Mo. 216-217 Rialto Bldg.
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San Francisco, Cal. 847 Phelan Bldg.
Seattle, Washington. 538 Central Bldg.

ONE of the proprietors of Garage Efficiency advises that in conversation with delegates to the National Garage Owners' Convention held recently in Chicago, he was greatly surprised to learn the big percentage of garage men who cleaned and polished by sprayer. The Wonder-Mist Co. glories in this information, for we originated the system that has transformed the garage business and Wonder-Mist stands today the only perfect material and method, the pioneer, the leader, the absolutely reliable product and the only one on the market that makes good every claim under an unqualified guarantee. Wonder-Mist deserves consideration. Write us for Special Garage Deals.

THE WONDER-MIST co.

Boston

Chicago

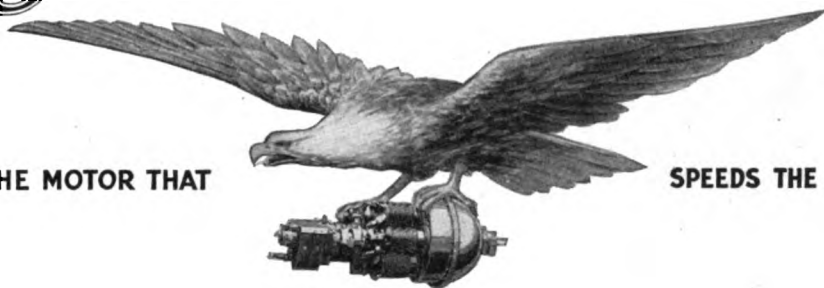
New York



The Eagle-Macomber Motor Car Co.

"THE MOTOR THAT

SPEEDS THE EAGLE"



A Car You Can Afford to Own



Three-quarter side and front view of Model 1-A Eagle Light Car, Roadster, equipped with 18 H. P. Macomber Rotary Air-cooled Engine. Photo taken on 18th St., Chicago; the residence of the late Geo. M. Pullman in background.

Luxury and Economy a Combined Reality

View of Model 1-A Eagle Light Car, Roadster, equipped with an 18-20 H. P. Macomber Rotary Air-Cooled Engine. Almost total absence of vibration. Gasoline consumption more economical than reciprocating engines of equal weight and power. Price with Standard Equipment \$700.00.

SPECIFICATIONS—Motor, Macomber Rotary. Cylinders, $3\frac{1}{2}$ bore, $3\frac{1}{2}$ stroke. Cooling, Air. Ignition, Atwater Kent. Electric starter. Clutch, multiple disk. Transmission, selective sliding gears. Rear axle, full floating. Front axle, I beam, drop forging. Wheel base 108". Gear shift, center control. Wheels, extra heavy second growth hickory or wire wheels at slightly increased cost. Fenders, crown type. Springs, Cantilever type in rear, half elliptic front. Tires, 30x3 $\frac{1}{2}$. Detachable rims.

STANDARD EQUIPMENT—This includes all electrical equipment, lamps, one-man top, windshield, Stewart-Warner Speedometer, electric vibrator horn, foot rail, foot accelerator, one extra rim which is held in place by special tire holder, tools, jack, pump and tire repair outfit.

Essential and Superior Features of the Power Plant

The Macomber Rotary Air-Cooled Engine is not only smooth running (were it set on end instead of horizontally with a two-point suspension, it would spin as calmly as a whirling top) very economical in fuel consumption and light of weight, but its cylinders and other parts are nearly all interchangeable. A blown out piston head means nothing more than about five minutes work of the driver to place a new one out of spare parts in his box. Such a change has been made in less than that time. On account of the centrifugal force the cylinders do not foul easily, but when cleaning becomes desirable they can easily be detached and cleaned in a comfortable place. This engine can be taken apart and re-assembled while mounted in the car, no derrick being necessary. A simpler or more fool-proof engine we have never seen. It develops its full rated power, another important feature of interest to the motorist.

Write for further particulars. Dealers' applications considered in the order of their receipt. Deliveries to begin about April 1st. Address, Sales Department,

Eagle-Macomber Motor Car Co., Sandusky, O., U. S. A.

RAYFIELD

CARBURETORS

Our business doubled in 1915 because the conviction that the Rayfield is the world's best carburetor has spread far and wide.

For 1916 a triple increase is assured. Rayfield supremacy is thus steadily advanced by the fast multiplying numbers of Rayfield users everywhere.

MR. DEALER

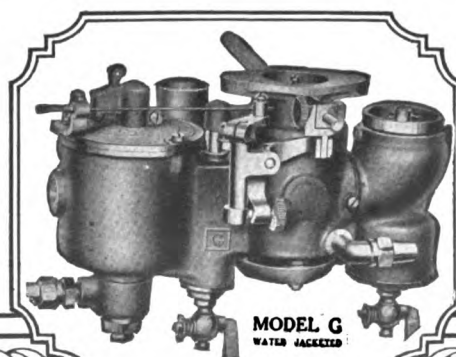
Turn this flood of orders your way. Get your share of Rayfield prosperity. Many Rayfield service stations in 1915 added from \$1000 to \$6000 business in Rayfield installations alone. We will give you their names and show you how they did it.

This year will see greater records. Your customers will buy Rayfields. Why not from you? Don't delay, but seize the golden opportunity.

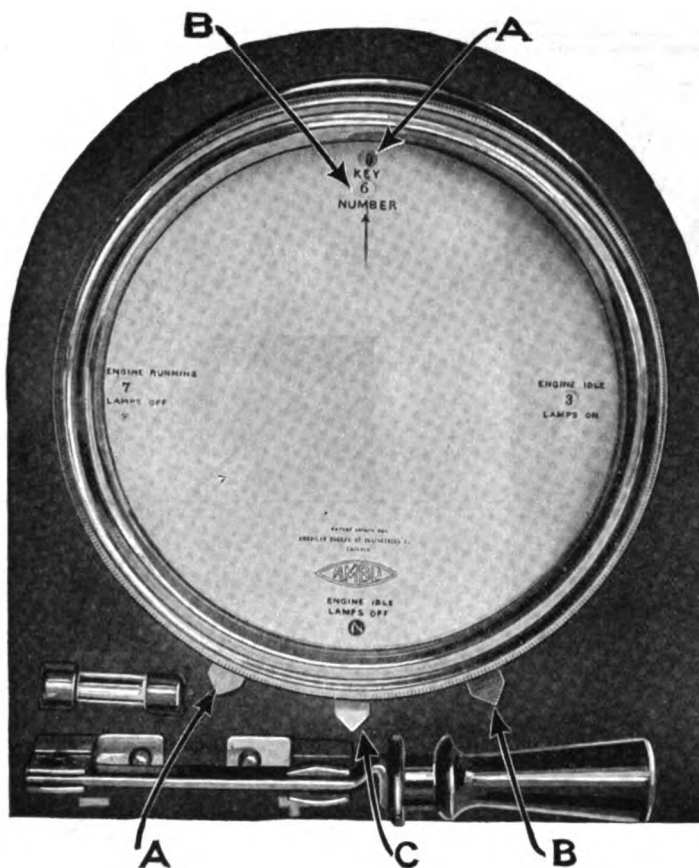
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NEW YORK
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DETROIT



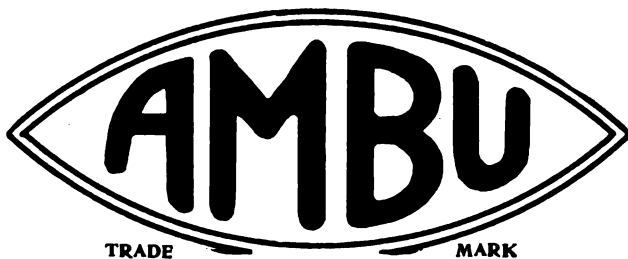
Please Mention GARAGE EFFICIENCY, when Writing to Advertisers.



*There is nothing Radical,
Untried or Unproven in
the Construction of this
Instrument.*

Detects—Locates
Accurately and
Quickly trouble in
any American
made Starting
and Lighting Sys-
tem used as stand-
ard on any Amer-
ican made car—
from the time of
the first installa-
tion, 1912.

Autolite, Remy,
Bijur, Rushmore,
Delco,
Westinghouse,
Dyneto, Entz,
Gray & Davis,
Splitdorf, Aplco,
North East, U. S. L.,
Wagner, Ward,
Leonard,
Adlake, Deaco, Disco
Allis-Chalmers,
Bosch, Jesco,
Esterline, National,
Leece-Neville,
Simms-Huff



Electric Trouble Shooter

The addition of a self contained volt-ammeter to Ambu now enables us to offer an instrument which in its scope answers every require-
ment of a garage or repair man—for electrical repair work on automobiles and for all testing purposes.

Ambu is a combination of elements that have been used by expert electrical repairmen for years when it is necessary to make quick and
accurate tests. Ambu has some of the characteristics of an ammeter, some of a voltmeter, and in addition, the improvements introduced
and patented by the American Bureau of Engineering. Yet it is neither an ordinary ammeter, voltmeter or anything else heretofore used.
Because it is a new thing, we have adopted a new name, "Ambu."

The connection of Ambu to the battery of a car in trouble allows this instrument to indicate immediately what kind of trouble is present
A principle is used that allows all faults to be divided into eleven classes, these classes caring for whatever trouble may be present in the
electrical systems of the car. Each class of trouble is designated by a number and these numbers appear on the dial of Ambu.

A reference to the chart whose number appears on the dial gives the trouble—its location and its remedy.

AMBU SERVICE

AMBU Service consists of AMBU wiring diagrams—
showing the exact layout of every electrical system as ap-
plied to automobiles; covering 400 or more cars.

AMBU Repair Charts—giving concise and practical
working information and complete instructions on how to
make repairs quickly and positively.

AMBU Service Bulletins keep you posted on all changes,
additions and improvements which may be made in the
various systems.

AMBU Engineering Advice—to help you out of any
unusual difficulties.

AMBU Instruction Book—compiled by experts, gives you
a complete working knowledge of the various makes and types of elec-
trical starting and lighting systems.

The complete AMBU Service contains information impossible
for you to obtain in any other way—classified, systematized,
readily accessible, and filed in a handsome, substantial metal
case with lock—a compact authoritative service.

A Suggestion—A substantial increase in the price of
Ambu is necessary—it is advisable that all repair
men contemplating the purchase of Ambu place
their orders with delivery date specified in order
to assure themselves of the present scale of
prices.

Write today—Use the convenient coupon.

American Bureau of Engineering, Inc.

1018-38 Wabash Ave. Automobile Dept. CHICAGO, ILL.

COUPON—Tear Off and Mail Today
American Bureau of Engineering, Inc., 1018-38 Wabash Ave., Chicago, Ill.
Gentlemen:—I am interested in AMBU Trouble Shooter as
advertised in GARAGE EFFICIENCY. I wish to take
March 15, or later, if possible, please send me a memorandum or-
der subject to change upon receipt of detailed in-
formation from you.
Name.....
Address.....
City.....
State.....



The Secret of "Small Up-keep" is Perfect Lubrication

The first cost of an automobile is important, but what does it cost you to run it? That's more important. Is your car laid up frequently — scored cylinders — burned out bearings — smoky spark plugs?

Use **Polarine**
FRICTION REDUCING MOTOR OIL

A perfect lubricant that covers even the remotest friction surface, protecting every wearing part and reducing friction to the minimum. Friction minimized means repairs minimized and increased power as well.

Polarine flows freely at zero and maintains the correct lubricating body at any motor speed or temperature.

Order a half barrel today. It's cheaper that way than in smaller quantities.

Standard Oil Company (Indiana) Chicago, U. S. A.

Use Red Crown Gasoline and get more power, more speed, more miles per gallon

14a

The Exponent of Co-operation

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FRANK RODERUS

Business Manager

WESLEY T. CHRISTINE

Managing Editor

JOHN B. FINUCAN

Advertising Manager

Garage Efficiency

OFFICIAL SPOKESMAN FOR
CHICAGO GARAGE OWNERS ASSO-
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ILLINOIS TIRE AND ACCESSORIES
DEALERS' ASSOCIATION

GARAGE OWNERS ASSOCIATION OF
OHIO

IOWA RETAIL AUTOMOBILE DEAL-
ERS ASSOCIATION

GARAGE OWNERS ASSOCIATION OF
MICHIGAN

Volume VI.

CHICAGO, FEBRUARY, 1916.

Number 2.

Devoted to the Interests of
GARAGE OWNERS
GARAGE OWNERS' ASSOCIATIONS
AUTOMOBILE and
SUPPLY DEALERS and REPAIR MEN.

FOUNDED BY
THE CHICAGO GARAGE OWNERS'
ASSOCIATION

Published monthly at the Transportation
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THE DAWN OF A NEW ERA.

A new era for the automobile industry of the world was ushered in by the creation of the National Retail Automobile Trade Association at Chicago, January 26 and 27, 1916. That is a moderate statement, one that probably will be enlarged upon by future historians when tracing the growth and development of the automobile trade of this country.

The importance of this movement scarcely can be overestimated and is not derived solely from the fact that garage operators and car dealers are organizing for protection. Protection of their rights and business merely is serving as the magnet to draw them together.

When a body of men get together in the spirit and for purposes identical with those that are actuating garage owners and car dealers no one may with safety attempt to define or limit the outcome. In a sense the defensive work of the organization will be destructive, but only those customs and practices that are

unworthy to live will be destroyed. That which is worthy will be preserved.

This new exponent of what eventually must become the greatest factor in the trade will have its rough edges ground smooth through contact with other organized interests. It will find its place and that place is one of power and responsibility.

Serving as the point of contact with the public these interests necessarily must seek to conserve and promote the interests of the public, as well as their own well being.

This movement—whether or not the fact is now recognized—has for its object the placing of the garage man and car dealer on a very high ethical plane. Only sound business principles will be recognized and approved. That is absolutely evident from the caliber of the men identified with the work.

After finding themselves and enlisting proper support the next step will be to plan the constructive work.

Today there are estimated to be 40,000 to 50,000 garage owners and car dealers in the United States. Within a very few years there probably will be 100,000 or more. To attempt to educate that mass of men to recognize modern business ideals, to attempt to teach them to conduct their affairs in a sane, businesslike manner, is to undertake a very great work. It is great not only from the difficulties encountered and to be encountered, but from the diversity of views which inevitably will arise.

Dealing with a great many men and many conflicting interests is political work and would be so regarded were it not that all things political are viewed with disfavor. The rank and file of the interests affiliated with this organization embrace all types, from the man who seemingly knows the most to the one who apparently understands the least about business methods and business principles.

This work has been undertaken with a full understanding of its magnitude.

Those in charge of the enterprise and responsible for its success realize they are not starting out on a joy ride. They have a keen appreciation of the amount of hard work in store. They realize, also, the nature of the rewards that await the worker, being aware of the fact that the worker must divide the fruits of his toil with the shirker.

Garage men who have the good of the nation, the respect of their fellow men and their own betterment as men at heart, will join eagerly in the work to which a few of the leaders have set themselves. Those who are content with a "hole in the wall with a dirty floor" will not have their names on the honor rolls of the associations.

INTERINSURANCE FOR THE GARAGE.

Awakening to the fact that they have been paying abnormally high rates for insurance garage men, headed by Investigator F. A. Bean, of Detroit, set about to remedy the situation.

An extensive and thorough investigation was inaugurated and an appalling list of sins of omission and commission was brought to light. There were physical and moral lapses from the course which produces light losses and low rates.

The entire situation was spread before the old line companies and the answer, briefly summarized, was that a garage was a garage and must pay the garage rate. It was admitted that the risk could be minimized, but the percentage of garages observing the precautions recommended by the board companies was so low that no exception would be made in their favor.

Finding the old line companies unable or unwilling to grant relief, the aid of managers of interinsurance companies was sought. It should be written into the record at this point that the interinsurance men to whom the idea was first presented refused to have anything to do with garage insurance because they

considered the moral and physical hazards too great.

The fundamental theory of insurance should be to prevent loss and that is the essential principle of interinsurance. Interinsurance calls for a change in the attitude of the party insured, for without that change the full benefits of interinsurance cannot be secured. The individual must know that his premium helps pay the losses and is high or low as losses are high or low.

Applying interinsurance to the garage business will bring about a wonderful change. When the operator finds he can save one-half cent on his premium by the simple act of keeping waste in metal containers, one cent by having clean floors, two cents by properly protecting his elevators, and other credits for doing ordinary things that a man of common prudence should do as a matter of course, he will end by keeping his premises, his stocks, his business in first-class condition and derive more benefit from putting the garage in order and keeping it in order than from the saving on insurance, great though that will be.

In his report on conditions and causes Mr. Bean said: "In censuring these (the insurance) companies for their policy in the past, his committee is in no way relieving garage men of their responsibility, for they are primarily to blame for the conditions that exist."

He might have continued along that line, in forecasting the future, and have added that garage owners will be responsible for the better conditions that exist in the future and that they will receive the benefit of lower rates due to the lighter losses, the saving in cost of administering insurance, and will derive their greatest profit from the new ideas and the new enthusiasm they will put in their business.

CLEAN UP—STOCK UP.

Spring is coming with its cleanup days. Piles of rubbish will be burned or will disappear in the dump cart. Blackened walls will be given a fresh appearance, windows will be cleaned, everything will be put in good condition in the home, the store, the office, the public structure. How about the garage? Is its dirt immune to attack?

Why not start that cleaning process right now? The force is not as busy as it might be. A great many cars are still on dead storage. Roads are bad and will be worse before they are better.

Every garage owner who has not organized his business on a basis to provide work for his force during the winter may very profitably undertake a spring cleaning campaign.

Get rid of the dirt and the junk. Wash the windows, put new goods on display. Invest in paint or give the interior of the garage a coat of whitewash.

Then take a look at your stock. Look over your record of sales during 1915. Figure out as best you can how much money your customers spent for accessories and supplies that were not purchased from you.

Jot down the names of the articles you know they bought. Estimate how much money it would take for you to put in a stock that would enable you to meet their requirements.

Do all of this, then go over your figures very, very carefully and after that go over them again.

If you will analyze yourself and your business in this critical way you will find it contains so many opportunities for profit that you will be on the jump from morning to night trying to grab off a few of the best it offers.

BE A REGULAR FELLOW.

"Individualism is passing," declares Robert Bland, president of the National Retail Automobile Trade Association.

Individuals, however, continue to be distinctly worth while, because they are the many strands of the modern commercial cable, which is composed of "regular fellows" cemented together with a mixture of definite ideas and purposes.

That garage operator or retail automobile distributor who prides himself on his ability to "go it alone," ultimately encounters obstacles and setbacks which, unaided, he cannot overcome.

Frequently he is informed that such and such a practice, which he deemed fair and just to all, no longer is the custom. He protests and expostulates but in the end he submits with such grace and suppression of feeling as he may command. Secretly he is impressed with the idea that the world is against him, and so it is.

For today it is the organized world against a disorganized mass of individuals. It is individual force and individual ideas against collective ideas and forces, and the individual comes off second best in every encounter.

Men who are easily discouraged bow to what they term the inevitable. Men of rich red blood have little respect for Mr. Inevitable. They proceed to dissect him to find out how he is made and discover that modern commercial power is produced by men banded together to accomplish a common purpose.

It follows, naturally, that if one class of men can organize to promote their individual as well as their general welfare, other classes have the same privilege.

Like charity, co-operation should begin at home. Work with the fellow down the street or in the next village. Don't try to work him and do not permit him to work you. Then ask your next closest neighbor to come and share the benefits of acquaintanceship and the choice fruits of common endeavor. Then the three of

you ask the next fellow, and so on until you "own all the land adjoining or lying adjacent to your plot."

The automobile trade is not well organized. When the day of thorough organization comes the functions of each branch of the trade will have been definitely determined and will be thoroughly understood. Ultimately the three departments will be separated one from the other: These three departments or branches are the manufacturer, who also may serve as the wholesaler, the wholesale dealer and jobber and the retail and service branch.

That day will not arrive with tomorrow's sun, but you can do your share toward ushering it in; you can help it come.

If you start working with your nearest competitor, possibly the man or the concern you term your meanest competitor, you will have founded the basis of a local organization, in the membership of which should be included the garage operator, the accessory dealer and the retail car distributor and, outside of the big cities, all of these men usually are one and the same fellow.

Local organizations join forces with each other and with the progressive individuals of the state and the result is a state association, and the various state organizations are affiliated in the National.

The scheme of organization that has been worked out for the garage men and retail car dealers is patterned after our democratic form of government.

A protest filed by an individual, by county or by state officials would not be heard among the nations of the world, but the voice of the President of the United States is heard and heeded.

THE LADIES ARE TO HELP.

H. E. Halbert, president of the Garage Owners' Association of Chicago, is planning a ladies' auxiliary.

This idea is not in keeping with the popular conception of the garage business and garage men. One or the other must go by the board, and any one who is acquainted with Mr. Halbert must realize that this idea is not going by the board, so the popular conception must eventually be erased from the public mind.

If men and women are to journey through life as real companions and help-mates, what better bond of sympathy and understanding can they find than a mutual interest in the enterprise from which their living is secured?

If one cares to look at this thing in a big way and apply the idea on a broad scale, in it can be found a solution for many of the social problems that now are taxing humanity. It provides a solution, by education, for the suffrage problem, and it is altogether possible it

would serve to eliminate that "other woman."

His plans for the auxiliary have not yet been disclosed, but the idea is growing and will blossom and bear fruit in due season.

WILL CUT OUT PURCHASING DEPART., IF—

Any time the Jobbers' association will come in and show the Garage Owners' Association it is willing to stop the dirty work of the Jobbers, we are willing to cut out the purchasing department.

It is time for these vast interests which seemingly are in conflict to devote time and thought to analyzing the situation.

The purchasing departments of the several associations have been frankly regarded as a means to an end, not as an end in themselves.

The purchase and distribution of supplies and accessories in a big way by and for association members is the remarkable protest the retail distributor is making against the present haphazard and unsatisfactory methods of wholesale dealers and jobbing houses.

While the automobile industry is new, it certainly is old enough to have established and to have provided means for enforcing the principles of trade that have been recognized and practiced since the days when men ceased to trade one commodity for another and established money, the medium of exchange.

It is related that

There were two cats in Kilkenny,
Each cat thought there was one cat too many,
So they fought and they bit and they scratched and they split,
Till, excepting their nails, and the tips of their tails,
Instead of two cats, there weren't any.

Men are credited with more intelligence than cats. It is up to the jobbers and their customers, the garage operators, to adjust their affairs to a peace footing and to reap the profits of an era of peace and—well, if not good will—at least a better understanding.

THE JONES WAY.

E. T. Jones, of Summit County, Ohio, left the convention in Chicago, just as others in attendance did, with his mind filled with impressions of the wonderful work the newly organized National Automobile Trade Association would accomplish.

The "Jones Way" is just a bit different from other ways. He did not sit down to await the arrival of the wonders that are coming. Instead, he called up his printer and possibly this is what he said:

"Send a boy over for my stock of letterheads. I want to make an additional statement of vast importance to me and to my customers. I want you to rush this order so I will have letterheads back

tomorrow that will be fully descriptive of my business."

Possibly he did not say anything of the kind, but a letter written February 4 stated, in red ink in 12-pt. type at the bottom of the letterhead:

Member of The National Automobile Trade Association.

Did yours?

HOW TO GET A LIEN LAW IN ANY STATE.

Judge Petit outlined the formula February 15 for the benefit of members of the Chicago Section of the E. V. A. at a moon-day lunch at the Metropole hotel.

Work for it is the first thing.

Work for it with the same practical intelligence you work for business.

Use the same skill in getting support for this idea you use in conducting your garage.

Take all opposing and conflicting interest into account. Pacify, satisfy or remove them.

Put something into the measure that will protect the public and, therefore, will appeal to the public.

Safeguard the rights of dealers or manufacturers who sell cars on the installment plan.

Above all else, start to work now.

Get in touch with the manufacturers of legislation and get them interested in your model. Get in touch with the thought and the interests that control the individual legislator. Reach him, teach him, get his vote.

Get public interest and support.

It will take a lot of time and a lot of work, but both will be well invested.

Do these things, *do them NOW* and you will get your lien law.

Wilson Rides on Bland's Motor-Bob

There are many versions to this story, no two of the participants tell the same story or tell it twice alike.

Sorting the wheat from the chaff certain golden nuggets were discovered, which is mixed metaphor, but then they were mixed stories.

Wm. Miller, master mechanic at the Bland Electric Garage, Evanston, Ill., has perfected a Motor-Bob, a combination of an Indian motorcycle engine and a bob-sled.

R. A. Wilson's favorite poem is "Sheridan's Ride."

"Bob" Bland is a "jiner" and likes to initiate people.

John E. Kelly is an all around good fellow, who would no more spoil a joke than he would overcharge Judge Petit.

R. A. Wilson showed up at the Bland garage Monday evening, February 14, reciting: "And Sheridan was twenty miles away."

"Bob, the Bland, winked and bob, the motor sled, appeared on the street. Wilson was game and the four men and the motor-bob shot down "Sheridan's Drive" at forty-five miles an hour.

Kelly is responsible for the information about Wilson changing the words of his favorite poem to something like this: "Safety is a million miles away."

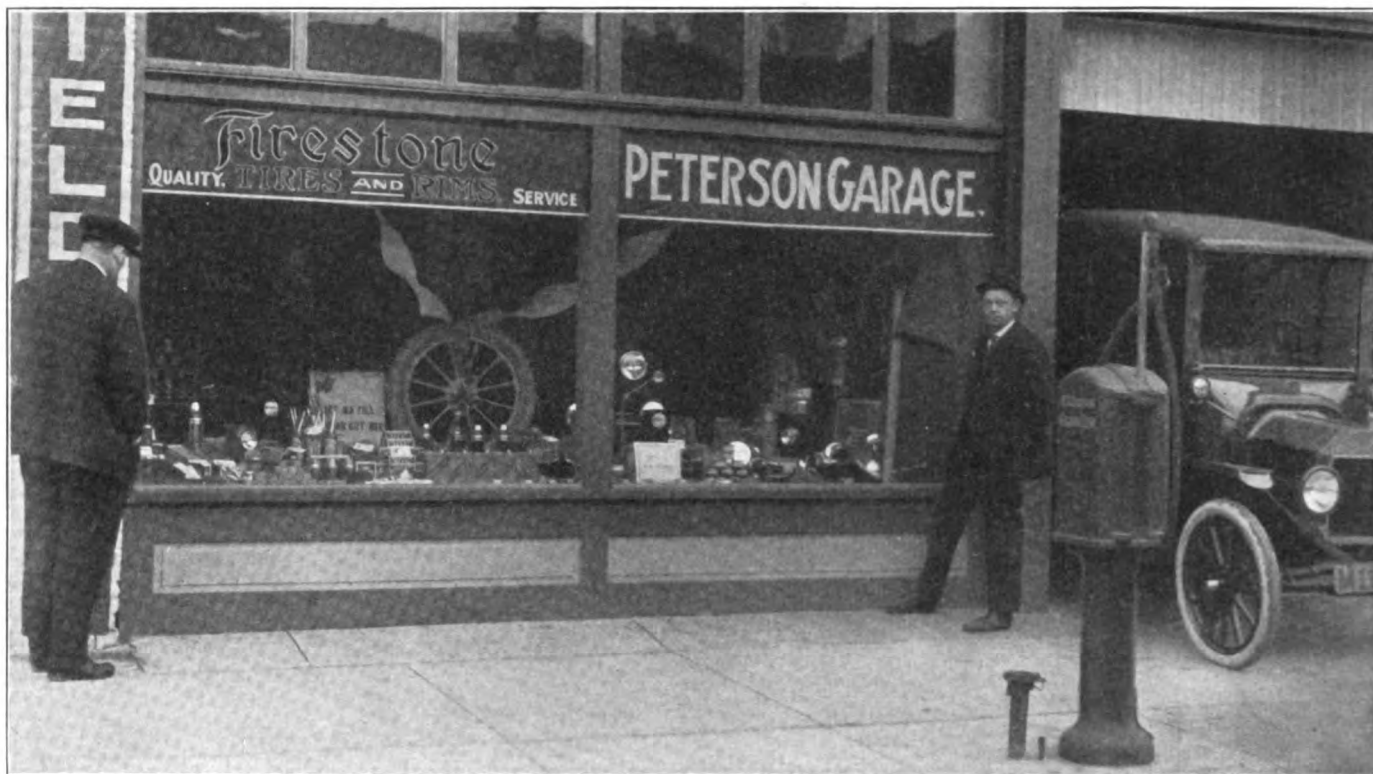
But they all enjoyed the ride and so, also, did the pedestrians who lined the walks to see them fly by.

Bland's only regret is that he could not be chauffeur and spectator at the same time.



All Set for Sheridan's Ride.

Getting Out of the Rut Developing New Business



A Reason for Success—This show window of the Peterson Garage, Columbus, Ind., tells of adequate stocks, clean business methods, and the service that a man who is proud of his establishment always gives.

One by one the garage men of the country are waking up and once awake they are awake for keeps. A competence can be made out of the garage business if conducted in the right way; failures are being made daily by garage men who are not conducting their business in the right way.

Garage owners are privileged to select whichever course suits their tastes, but once the operator has had a taste of success, the old style, careless, slipshod methods are discarded forever.

Clean Garages and Clean Business.

Charles F. Peterson, proprietor of Peterson's Garage, Columbus, Ind., is alive to the opportunities for enlargement the garage business presents. He has put in a show window and display room for the stocks he handles, believing that the garage operator has as much—if not more—occasion to display his wares as the butcher, the baker, the druggist, the grocery store or the hardware dealer.

In a recent letter Mr. Peterson says:

"I have read with great interest your *GARAGE EFFICIENCY* and especially the bookkeeping articles which have been running lately.

"I firmly believe in the principles you are advocating in making window dis-

plays, in cleaning up the garage and in clean business methods.

"I have the only garage display window in a fifty mile radius and believe it is paying me. I am sending you a picture of the window and garage under separate cover."

A One-Piece Job Ticket.

Here is a sample job ticket which, for compactness and convenience, should appeal to many. Possibly no two garage men will agree on the best method of keeping record of the time and material employed on repair work.

In presenting this ticket for the consideration of his fellow garage men, Mr. Peterson says:

"Here is a sample of the job ticket we are using. We put them up in blocks of 100, white and yellow alternately.

"From the top of the tickets to the number the tickets are exactly alike and by the use of carbon the customer's orders are entered in exactly the same way.

"The yellow sheet goes to the shop and the workmen keep their time on it, as shown by the report written thereon. The white sheet is retained in the stock room. When parts are needed the proper entries are made on the white sheet at the stock room window *before* the part is taken to the workshop. In that way

we absolutely insure the proper charge being made.

"When a job has been completed no payment is made until both sheets are brought together. Each workman's time is carried out at his particular rate and the total time is shown at the bottom of the page. That sum is then transferred to the white sheet, the 'time,' 'parts' and 'accessories' are added and the gross amount of the customer's bill is shown at the bottom of the white sheet.

"Customers are required to sign this sheet showing that they received their cars in good shape.

"This job ticket does away with requisition blanks and time tickets for each man working on a car and limits complications to a minimum. The cost of work can be figured much more easily and also more accurately from these two tickets than when a number of several different kinds are used.

"We found, when we used the 'numerous ticket proposition,' we always missed a couple and found them after the man had secured his car and gone away. I have tried all manner of job and requisition tickets and found that this is the simplest and positively the best job ticket I have ever used or ever seen in use. Each ticket is numbered and each ticket

must be accounted for. If it is spoiled, we keep track of it just the same.

cash register we state: 'Job No. 900, \$7.90, Cash.'"

letter size. The reproductions are not facsimiles, but show the wording and arrangement of the tickets.

"When ringing up the amount on the

The tickets employed are regulation

PETERSON'S GARAGE

JOB SHEET

TIME and MATERIAL

Name John A. Scott

Date Jan. 24, 1916

- 1—Scrape out carbon.
- 2—Grind valves.
- 3—Repair steering gear.
- 4—Repair blow-out in tube.
- 5—Put in top windshield glass.

Car wanted at 5 p. m.

No. 900

DATE	WORKMAN	CHARGE OF TIME	TOTAL
1/24	Lesner	Time on job	\$1.50
1/24	John	" " "	2.10
1/24	Bayard	" " "	.60
Total Time			\$4.20

QUAN- TITY	PART NO.	DON'T GET PARTS UNTIL LISTED HERE	CHECK	PRICE EACH
1		Top windshield glass	C. P.	\$3.50
		Rubber and material to repair tube	B. S.	.20

TOTAL CHARGE \$7.90

Paid Jan. 25, 1916.—C. P.

O. K., C. P.

Received by John A. Scott.

PETERSON'S GARAGE

JOB SHEET

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Name John A. Scott

Date Jan. 24, 1916

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- 2—Grind valves.
- 3—Repair steering gear.
- 4—Repair blow-out in tube.
- 5—Put in top windshield glass.

Car wanted at 5 p. m.

No. 900

DATE	WORKMAN	DESCRIPTION OF WORK DONE	RECORD OF TIME	TOTAL RATE	TOTAL COST
			Began 7		
1/24	Lesner	On engine (carbon)	Quit 8:30 1½	60	\$.90
			B 8:30		
1/24	"	On valves (grinding)	Q 9:30 1	60	.60
			B 8:30		
1/24	John	On steering gear	Q 12 3½	60	2.10
			B 7		
1/24	Bayard	On tube	Q 8 1	40	.40
			B 8		
1/24	"	On windshield glass	Q 8:30 ½	40	.20

Work O. K. by L. O.

Total time charge Fwd \$4.20

Remarks:

Making Up for High Cost of Gasoline

(In this timely article E. A. Bates, of the Findelsen & Kropf Manufacturing Company, Chicago, producers of the Rayfield carburetor, gives advice that should be of value to every garage man and, properly transmitted, to every customer of every garage man.)

With the price of gasoline mounting higher and higher, questions of economy are forcing themselves upon the attention of motorists everywhere. In the opinion of most motor experts, the rise in the cost of gasoline may have some good results if it teaches the motorist to be more careful about the condition of his engine and the importance of equipping it with the right carburetor.

The rise in price of gasoline from 12 to 21 cents can be entirely offset. If the average gasoline consumption of the motorist's car can be increased from, say ten miles per gallon to fifteen miles per gallon, that is, on a basis of fifteen miles per gallon, gasoline at 21 cents is no more expensive than 14-cent gasoline which produces only ten miles per gallon.

It is well within the power of almost every motorist to increase materially the

efficiency of his car. There are two factors for the motorist to give especial attention if he wants to keep down his gasoline expense. One is the carburetor he uses and its adjustment; the other is the condition of his valves.

It is very often possible, at the slight expense required for grinding valves, to so increase the mileage of any motor that the difference is very perceptible in the gasoline bill. There is also the advantage of more power and a better running engine. Motorists would do well if they would pay more attention to the valves in their car, and, if it is regularly run, have the valves ground not less than twice a year, and preferably three times. With modern motor design, valves are so accessible that this is usually a comparatively small job, and it will show good results in economy.

The most important factor in obtaining economy is the carburetor. There are a great many carburetors on the market; some of them are very good, and some of them ordinary. Manufacturers, however, who are affected by the cost of their cars

quite frequently equip their cars with carburetors which are not well adapted to the economical operation of the motors. It's a strange thing that some of the most popular cars should not be equipped with carburetors costing the manufacturers but a slight advance, and which would prove decidedly more satisfactory to the users.

Then there are cars equipped with well made carburetors which are not properly fitted to the particular motor. Few motorists understand that with the better automobiles the carburetor is as carefully designed to fit the motor as any other part of the machine, and is in small but important details different from the same make of carburetor used on other cars. When a motorist purchases a car of this kind he can be sure of the very best results.

For a motorist whose car is equipped with an inferior carburetor there is nothing that will give more pleasure, in the improved running of the car, than the purchase of a first class carburetor. It will not only result in economy, which

will go a long way towards offsetting any increase in the cost of gasoline, but it will make the motor more satisfactory in every respect. Many thousands of motorists have had this experience, and those who have not yet enjoyed it will find a surprise awaiting them when they do get a new high grade carburetor.

The matter of adjustment is also important, but not nearly so important as the make of the carburetor and the proper model for the car in question. Makers of the Rayfield carburetor have pre-

pared special models, which are carefully constructed for various well known cars, such as the Buick, Dodge, Ford, Hudson and others.

With the above points in mind, motorists to whom the increasing cost of gasoline is an ominous phenomenon, should bear in mind that they can often meet this increased expense by care of the motor, and especially by the use of a first class carburetor.

These practical phases of motoring operation, or what we might term "En-

gine Efficiency," should give the garage owner and repair man a hint on keeping cars in prime condition and on the road whenever the weather permits. Following the suggestions here made the repair shop can be kept busy and there should be a material increase in the sale of gas, oils, supplies and accessories of all description.

The whole question may be summed up and solved by giving customers the intelligent service for which they are willing to pay.

Approved Methods of Repairing Modern Fabric Tires

[Any questions respecting any phase of tire repair work, addressed to GARAGE EFFICIENCY will be answered by a corps of tire experts.]

There are two classes of men who are vitally interested in the repair of tires. The first is the man who makes the repairs, for it is his livelihood. The second is the man who owns a decrepit tire.

The repairman is up against the problem of getting the man with a decrepit tire into his place of business. And the man with the tire refuses to come unless he knows that he will save money by having his tire repaired.

That brings up the nub of the question: It is up to the repairman, if his business is to prosper, to show that he can repair tires so well that the owner of the tire will save money.

Sad to relate, in an appalling number of cases during the past few years it has not paid to repair tires. The man with the decrepit casing found, through bitter experience, that it was cheaper to throw it away and buy a new one than spend his money for a makeshift.

The fault has not been with the repairman altogether. The science of tire repair has not kept pace with developments in tire and automobile manufacture. Strains upon tires today are a hundred per cent greater than a few years ago, owing to increased speed and greater tendency to travel over all kinds of roads, but repairmen have continued to repair tires in the same old way.

It was appreciation of this fact that induced the B. F. Goodrich Company, the largest manufacturers of automobile tires in the country, to study the problem. In its repair department, probably the largest in the country, the problem was studied and every conceivable method was tried out.

The result: A method so simple that it is but an adaptation of methods which repairmen are using today, a method that calls for but small increase in materials

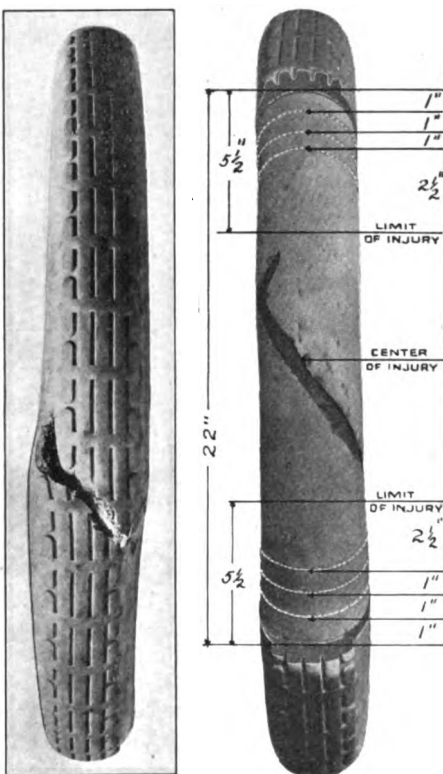


Fig. 1—The blowout, selected for repair.

Fig. 2—Tread and three plies of fabric removed.

used, and but little more time in effecting the repair.

But the difference in performance when the tire "hits the road again" is remarkable. It is great enough to make it practical for any car owner to repair most of his injured casings. Adoption of the new methods by repairmen will restore the confidence that the man with the injured tire has been losing.

Read the following description of the new methods which the B. F. Goodrich Company has adopted—examine the pictures carefully. Then adopt them for your own repair work:

Figure 1 shows a tire that was jabbed through the first three plies and then run

with an inside blowout patch. Gradually the fabric weakened and the tire finally blew out from bead to bead.

If the repairman has a pattern, he can place it upon the injured tire and mark the limits of his repair. Should he not have a pattern, he can note the measurements shown in Fig. 2. In the first place, he should leave at least $2\frac{1}{2}$ ins. between the end of the injury and the first "step" on each side. Then he should leave at least 1 in. between each of the "steps." If three plies of fabric are to be removed as in this case, he should use the identical measurements shown, leaving at least 1 in. between the last "step" in the fabric and the point where the tread is cut.

Many repairmen do not leave room enough between the injury and the first step, and then they have not stepped out the fabric. The result: A succession of splices one over the other that weaken when the tire pounds over the road.

Figure 3 shows how the fabric is removed from the inside. The cut is made one inch farther from the injury than the point where the tread was cut.

In its study of repair methods, the B. F. Goodrich Company found that whenever an injury extends to all the plies of fabric, it is best to "step" the tire down as described above, but that one ply of fabric should be left as a foundation to retain the strength and continuity of the tire. Should the tire be made of four plies of fabric, two above the bead and two below, then both plies are removed from the top and one from below. If a five-ply tire with three above the bead and two below, then all plies are taken from the top and one from inside. In the case of a large tire with six plies of fabric, three are taken from the top and two from the inside.

The value of taking all plies but one from the tire lies in the fact that all of the injury is removed. There is no weak spot to grind and tear inside.

With all plies but one removed, the re-

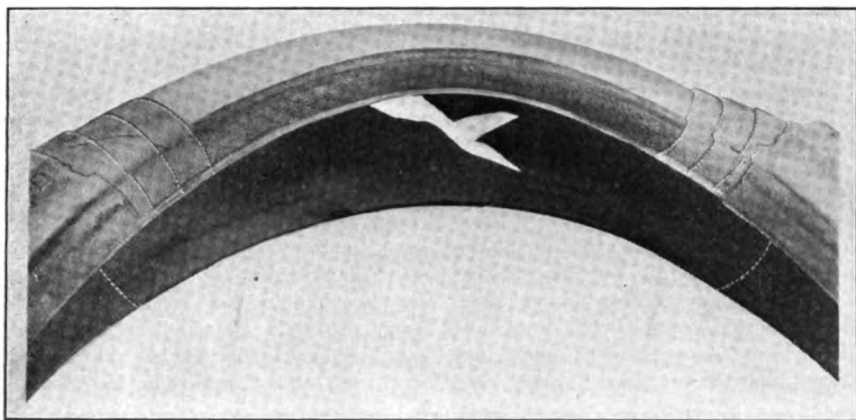


Fig. 3—Relation between outside and inside steps, and removal of the inside ply.

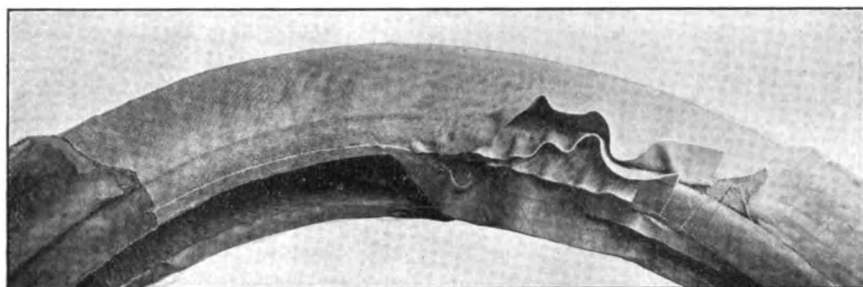


Fig. 4—Fabric used in replacing should butt evenly with the steps. The third ply should extend to the tread.

pairman is ready for the repair itself. All gum should be buffed from the fabric and the tire should be dried for two or three hours. Two coats of cement are applied to the exposed fabric, the first drying two hours and the second six hours. A thin strip of cement should then be placed over the edges of the fabric steps to protect the edges and keep

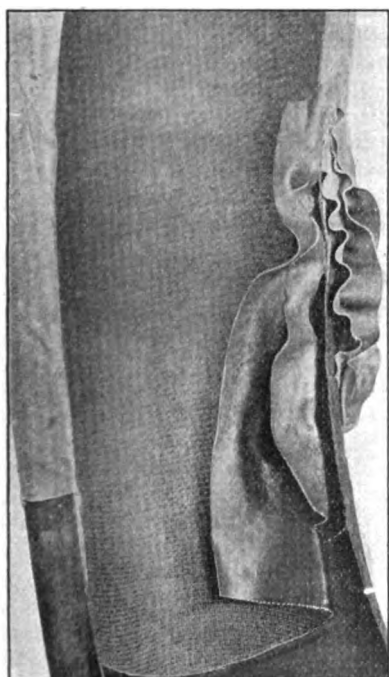


Fig. 5—Replacing the inside ply, replaced so the ends of the fabric butt with the splice.

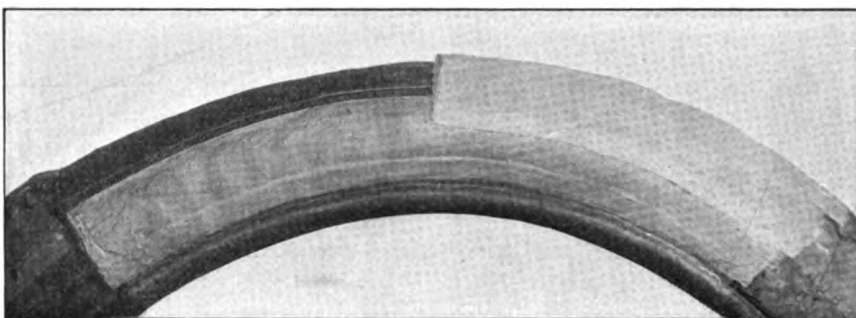


Fig. 6—This shows the repair nearing completion. The tire is almost ready for vulcanizing

them from chafing. The same precaution is taken with the edges of the injury and enough gum is used to fill up the hole in the ruptured fabric.

Cut fabric to fit evenly in the first two outside steps. The ends should butt evenly. The third or outside ply should overlap and extend to the cut in the tread. See Fig. 4. The ply taken from the inside should then be replaced, fitting evenly and butting ends at the splice.

The only extra fabric put back in the tire is a reinforcing strip on the inside which is 2 ins. longer than the section and serves as an added protection to the entire repair. See Fig. 5.

The illustrations show how the outer and inner plies of fabric lap over the bead. These are then covered by the regular bead strip.

The tire is now ready for the vulcanizer and after curing the normal time will be 90 per cent stronger than if usual methods of repair were followed.

This method eliminates the one great difficulty which the B. F. Goodrich Company found with repairs. Repairmen did not **TAKE THE INJURY OUT OF THE TIRE**. Patches placed on top of the injured fabric were but a makeshift—no more than a patch. Step the repair down and replace the injured fabric with new materials and the tire is repaired rather than patched. It goes back on the road nearly as strong as before injury.

Just one more word of caution. Use repair materials that are all made by one manufacturer and are designed to harmonize. Fabric that cures slowly and tread gum that cures quickly will cause trouble. Most manufacturers have made their materials harmonize with the other articles in their line, and hence the repairman will be safe if he follows their instructions for curing.

It is up to the repairman to inspire confidence in his work by using the best of methods. The man who does will earn a reputation and take business from his competitors. The man who follows antiquated methods will find his laxity a poor investment.

Any questions on tire repair addressed

to **GARAGE EFFICIENCY** will be given the attention of Goodrich experts.

A TRUE STORY.

The salesman for the accessory jobbing house called on the dealer.

"Some time since you bought any brake lining from me, Mr. ——. Nothing wrong, is there?"

"Well, I'll leave it to you to judge. Last week one of our customers, owning a single commercial car, asked for a quotation on a brake lining. We quoted him the best price he was entitled to, whereupon he showed us an invoice from your house covering a 7-foot length, on which he was given the same discount which you give us on 100-foot coils. Consequently, I do not care to stock any of your specialties to sell against such competition."

Moral.—The jobber can sell all of the dealers all of the time, and some of the customers some of the time—but, if he tries to grab all of the business, he is no longer a jobber.

The New Eagle Car and The Macomber Engine

The Sandusky, Ohio, newspapers are jubilant over the decision of the Eagle-Macomber Motor Car Company to make Sandusky the business and manufacturing headquarters of the company. Credit for this is accorded the company's newly elected president, J. J. Dauch, and his business associates, men who have already done much toward making their city attractive to large manufacturers.

Until February 1 the general offices of the Eagle-Macomber Motor Car Company were located at 1350 Michigan boulevard, Chicago. On that date they were moved to Sandusky where the company's assembly plant had already been located and plans for greatly enlarged facilities had been completed.

The Eagle-Macomber Motor Car Company closed its first year of corporate existence on January 10, when the first annual stockholders meeting was held and directors for the current year elected. The new board includes J. J. Dauch, Geo. A. Schwer, Sydney Frohman and U. B. Curtis, all of Sandusky; and E. G. Lancaster of Chicago. The first three are the new men on the board, Messrs. Curtis and Lancaster being re-elected. At the first meeting of the newly elected directors the following officers were elected:

J. J. Dauch, president; U. B. Curtis, vice-president; George A. Schwer, secretary, and Sydney Frohman, treasurer.

Exceptional interest has been evidenced by motor car people, mechanical engineers and the public generally, in the development of the Eagle-Macomber Motor Car Company on account of the vigor with which that company has been handled since it was organized about one year ago, and the proposed use of a rad-

vance demand for Eagle cars and the Macomber engine. Now that these several important things have been accomplished to a degree satisfactory to the management and the direction of the company placed in the hands of experienced people, aggressively active work of manufacturing and distribution can be undertaken.

The Dauch Manufacturing Company was attracted to the Eagle-Macomber Motor Car Company early in 1915 on account of the merits of that company's engine. Negotiations followed which finally resulted in a contract being let to the Dauch Manufacturing Company for the building of Macomber engines, a work the Dauch Manufacturing Company was especially well equipped to undertake. The present close relationship of the Dauch Manufacturing Company and Eagle-Macomber Motor Car Company promises much in the way of mutual advantages.

The Eagle-Macomber Motor Car Company is now assembling its first installment of Eagle cars for general distribution

and announces deliveries to begin by April first, after which date the monthly production will be increased rapidly.

The Macomber rotary air-cooled engine was originally designed for aeroplane purposes and was successfully demonstrated for its efficiency for the purpose. It is predicted by those in a position to know that within another two years this engine will be almost universally used in air craft. Its extremely light weight, its economy of fuel and oil consumption, its almost total absence of vibration, plus its dependability, simplicity and ease with which it can be kept in continual good order, are things that strongly appeal to aeroplane, motor car and boat builders, and especially to those governments just now buying such craft in large quantity.

To adapt this engine to automobile uses and thus give the motorist the benefit of such advantages as described, has been the work of the Eagle-Macomber Motor Car Company, and the successful efforts of this company in this respect is in part responsible for the present excellent condition of the company and the wide and growing popularity of its cars.

The plan is to first bring out the Eagle Roadster, listed at \$700 with complete equipment, and by early fall announce a five-passenger car that can be sold for about \$800 with complete equipment.



Front view of the Model 1-A Eagle Light Car Roadster.

ically new type of gas engine—the Macomber rotary air-cooled engine.

The past year was occupied in financing the enterprise, perfecting the car designs, and refining this remarkable engine, securing satisfactory manufacturing facilities, and developing what is said to be an enormous world-wide interest and ad-



Rear and Side view of the Model 1-A Eagle Light Car Roadster.

A Partial List of What Garage Operators Must Do

In taking up the work which devolves on the secretary of the National Automobile Trade Association, I realize that our association is only a child. We are in our infancy and the results we can accomplish now are small when compared with our power when we reach maturity. We must not overtax our strength and thereby jeopardize our future power and prestige. It would be folly for a child to undertake to lift great weights and sustain a sprained and weakened back, so it would be folly for us to undertake measures or projects too big for our present strength.

Under our present circumstances we must limit ourselves to those things that are certain of accomplishment, for with each attainment we build strength for our future. We must not attempt anything that would end in failure. One failure tears down more than ten successes can build. We *MUST* always win. We must always accomplish what we undertake, for it must be our ambition to have it truthfully said of us when we attempt anything, "We might as well get in the wagon; they always get what they go after."

The paramount issue before us is to increase our membership until ultimately every state presents its full quota of strength, organized and centralized into one great body which can make its influences and demands felt in any way or upon any body, whether private, corporate or politic.

When we reach maturity we are certain of the accomplishment of the purposes that we conceive today, and that from time to time will arise as being necessary for the permanent good of the automobile industry, not only for our members but for the manufacturer and the owner as well. In the future I see unlimited benefits. By benefits I mean not only those for the automobile dealer and garage owner, but benefits for the consumer, for without his appreciation, sanction and support our cause would be lost before it begun. Among these many benefits I can see:

Standardization of Service.

My idea of standardization of service is to establish uniformly among our members a service which is efficient, which is careful, which is rapid. This service in the first place must be rendered by competent employees.

I conceive an idea of a correspondence or probably a short course school, held in each state for the employees of the National Automobile Trade Association garages. The object of this course would be to equip employees with the same

knowledge, with the same ability and equal alertness to any fallacy in the working of an engine and to its quick repair and restoration to perfect working order. At present there are represented in the various garages employees of all classes of efficiency and the result is that it not only takes them considerable time to see the faulty part in a disabled car, but also the repair of such part is many times faultily and poorly done.

Our object should be to eliminate these



ROBERT ALLEN WILSON,
Secretary of National Automobile
Trade Association.

Mr. Wilson is well fitted by both his natural gifts and training for the responsible position which he assumes. Mr. Wilson is a Missourian by birth. His work in late years has consisted largely of association development, particularly along the lines of insurance associations, he having been associated in the past ten years with The Bankers' Inter-Insurance Alliance of America, the Merchant Underwriters, and the Manufacturers' Alliance. In these organizations he has attained unqualified success. He is an expert accountant of known efficiency, and in developing this department of the organization will undoubtedly do much.

In personal qualities, Mr. Wilson makes an ideal secretary for the Association. He has a pleasing personality and is of a humorous, though practical turn of mind, and his personal magnetism attained by years of development has resulted in his being able to approach any class of a business man. Besides being an energetic and capable organizer, he is an efficient and convincing public speaker.

In securing the services of a man of Mr. Wilson's character and ability, the directors of the association have made a long stride forward in the promotion of the welfare of the National Automobile Trade Association.

employees and to make the National Automobile Trade Association garages emblematic of the highest efficiency and uniform good service. I can see an advantage in the elimination of employees guilty of insubordination and drunkenness, low mentality and other bad qualities, which may contribute to their inefficiency.

Again it will be an important feature of our work to investigate and recommend various labor saving devices and various kinds of machinery, which will naturally reduce the expenditure of the employees' time.

By this standardization of service we will accomplish results more beneficial to this branch of the industry than any other one thing we can possibly do.

Cost System.

It is a very regrettable fact that a large proportion of the garages in the United States today are not operated on a businesslike basis, due to the lack, in almost every case, of an adequate cost system. It is absolutely necessary for a motor dealer, garage owner or an accessory dealer to have a cost system which will show him exactly what he is doing in his business—whether he is making or losing money on the various departments, and, if he is losing money, his cost system should show him a remedy for such loss. It is just as unsatisfactory to be making money when you don't know it as to be losing money when you don't know it. The garage owner in the past has been more or less an uneducated man—his knowledge of accounting, of incomes, disbursements, assets and liabilities has been very meager, and, as a result, his business has been very poorly handled.

However, with the inception of the present day, modern garages, managed by progressive, educated business men, the need for an adequate cost system has manifested itself and has been unmistakably felt by those engaged in the industry. This cost system should be established on such a basis that the information as to the status of the business can be determined as often as the owner desires, and as to the profits and losses resulting from the methods which he has pursued in the production of same.

I can foresee the establishment of a bureau managed by experienced accountants to co-operate with the garage owners in the installation of cost systems, both through correspondence and by personal visits to their garages, and I believe that this important feature will have our attention in the very near future.

Freight Rates.

There has been a flagrant abuse of the freight rate charge by dealers alike be-

cause there has been a lack of understanding and uniform schedules in such regard. It is, and has been in the past, decided principally on the primitive basis of barter and trade between the dealer and the buyer, the dealer has been the loser and his just profit in such manner curtailed.

The dealer should be protected in the price of his cars, as he is justly entitled to the f. o. b. factory price, plus the freight charge to the point of sale. This is as much an overhead expense item to him as his rentals, light, heat and power and the consumer should and must pay it.

Sound and Consistent Values.

The establishment of sound and consistent values for all National Automobile Trade Association garages throughout the United States is a vital feature of our reputation and effectiveness, and to facilitate the proper determination of what are sound values can be accomplished and most effectively through association laboratories and association stamp.

I can foresee the establishment of a more or less extensive central laboratory of National Automobile Trade Association, which will carry on exhaustive and detailed experiments on all products such as casings, tires, spark plugs, shock absorbers, lubricating oils, etc., and from these experiments we can determine which product offers the greatest value at a given price. Understand, there may be various priced products which it will be necessary for the garage operator and dealer to handle, but the point I take is that we shall tend to arrive at the maximum quality for the minimum price.

When our laboratories have determined the highest quality of articles at a given price, it should be approved by our association stamp and thus the consuming public will come to accept the various articles which bear our stamp as being the acme of value.

Universal Standardization of Parts and Accessories.

In conjunction with sound and consistent values goes the standardization of parts and accessories. At the present time there are so many various kinds, sizes and makes that it devolves upon the garage owner and dealer to carry extensive and various stocks to answer the varied demand of the consuming public. This necessitates large stocks and unnecessary investment, difficulty in maintaining complete stocks at all times and greater difficulty in securing these various accessories from the manufacturer.

One purpose of the National Automobile Trade Association in this connection will be to establish through co-operation with the various manufacturers uniform parts and accessories and equipment which can be procured for any car at any garage. The results will be very satisfactory to National Automobile Trade Association members, as it will

necessitate only a small stock and a comparatively small investment, and the requirement of less room for displaying same—the possibility of a much quicker and efficient service to the consuming public because they will have at all times immediate access to parts for their machines; also this will produce a condition where stocks may be replenished overnight from any manufacturer or jobber and will eliminate the uncertainty of deliveries which at the present time is most annoying and unsatisfactory to the manufacturer, jobber, dealer, garage owner, the retailer of automobile parts and accessories and the consumer.

Good Roads.

Good Roads in the past have been promoted and produced alone by the consuming public without the active assistance of the garage operator and automobile dealer. The business of the automobile factories has been to build cars. The business of the dealer has been to sell cars. The business of the garage operator has been to repair and store cars.

To promote the best interests of all and to produce roads conducive to greater travel, creating thereby a greater demand for cars, there will be required the active co-operation of all these various branches of the automobile trade industry, and it shall be the ultimate purpose of our association to produce throughout our broad land a complete network of country, state and national highways. The advantage of these are many fold. It facilitates greater ease in handling crops, brings the farmer nearer to the railroad, thereby increasing the value of his land and enabling more farmers to own machines. It will be conducive to more traveling, to longer cross country trips which will increase the demand for national and uniform garages such as we propose and intend for every member of National Automobile Trade Association. Likewise it will produce better results for the manufacturers because, with better roads, their cars give better results and greater satisfaction to their respective owners.

Legislation.

One of the principal objects for which National Automobile Trade Association is organized is to secure fair and equitable legislation in the various states. The introduction and passage of favorable lien laws, the elimination of indiscriminate price cutting and the establishment of laws wherein fair and legitimate charges and regulations will be maintained throughout the United States, the elimination of bills providing for unfair taxes and unfair discrimination against the automobile owner and dealer.

I can conceive of a legal department in the very near future, established and perfected for the purpose of assisting in the passage of such bills as the "Steven's bill," with which all are doubtless fami-

liar and which should and no doubt will receive your individual and collective support.

Committee on Complaints.

There should, and no doubt will be, in the near future a committee of members of National Automobile Trade Association appointed for the purpose of receiving complaints from the consuming public, the purpose being to educate the public to the fact that when they stop at a National Automobile Trade Association garage they will get fair treatment and are assured of this fair treatment through this committee, which will have as its duty the investigation of complaints and to act as an intermediary between the consuming public, the motor dealer and the garage owner.

Insurance.

The question of insurance for our members has already been given considerable attention, and we have perfected an arrangement whereby the unjust and exorbitant charges levied on the properties of our members will be eliminated. We have made a very thorough investigation in this regard, and I do not hesitate to state that we believe the next few years will see a reduction in rates on garage properties of from 25 per cent to 50 per cent of the present cost, and which will mean a saving to the garage owners and motor dealers of millions of dollars annually.

Conclusion.

While I have made no attempt to mention the time when it will be expedient for us to take up these various phases of our work, they should have attention as soon as we have builded to such an extent that their accomplishment will be unquestionably assured. While it is impossible to accomplish all of these projects at the present time, we shall keep our minds active in perfecting our ideas in order that when the time is opportune for their accomplishment we may have the knowledge and plans sufficient to know what we desire and the limit which we hope to attain by our efforts.

These results can only be accomplished through the strength of unity and the co-operation of each and every member of our association. I desire to plead earnestly with you to give your officers and board of directors your hearty co-operation, support and approval.

OHIO'S BILL FOR MOTORS AND MOTORING.

New cars	\$ 43,500,000
Tires	13,500,000
Gasoline	13,650,000
Repairs and garaging.....	36,000,000
Oil	8,000,000
Total	\$114,650,000

Writing Common Sense Into Insurance Practices

[A report submitted by F. A. Bean, of Detroit, at the second annual convention of the Michigan Garage Owners' Association, held at Statler Hotel, Detroit, Mich., January 20-21.]

Those members who attended the convention held in Grand Rapids last October will remember that the work of this committee up to that time had been confined entirely to a review of the insurance rates and the conditions surrounding them in the state of Michigan.

It was shown that the manner in which the various garages are operated, including cleanliness, fire protection, safety protection, discipline of employes, etc., is in a large measure responsible for the present high rates for compensation, fire, personal liability (including passenger hazard) and property damage.

It was also shown that a pronounced inactivity on the part of the insurance conference and its individual members was largely responsible for this condition continuing to exist.

Immediately after the October convention the matter of providing a differential or schedule of credits to be applied to garages for compensation insurance was again taken up with some of the companies who were members of the conference, but no encouragement was received. Later it was taken up with the conference and the manager informed this committee that he did not know whether the Rate Board in New York City had such a question under consideration or not, and if they had such a matter up it would probably be months and perhaps a year or two before it could become effective. To substantiate this they cited the present Factory Schedule, which they said it had taken years to prepare, also that any schedule prepared by the Rate Committee was first tried out in New York for a period of several months before being put into operation elsewhere.

It seems that some time ago they attempted to establish a differential covering public liability, which they tried out in New York. After being in operation for a few months they found that the charges and credits were not balanced and that instead of lowering the rate it had been increased and the schedule was withdrawn for the purpose of revision. What progress has been made with this revision it has been impossible to learn.

We were also advised that if a garage was operating so that it passes their inspection, it would be entitled to a certain rebate provided—LISTEN—"Provided your annual pay roll is in excess of one hundred thousand dollars (\$100,000)."

Gentlemen—HOW MANY OF YOU WOULD RECEIVE THE REBATE?

No Relief Offered by the Old Line Companies.

From the past history of rates in Michigan, in fact in nearly all of the states, it would appear that there is little or no



F. A. Bean, Detroit, Mich.,
A Specialist in all Matters Relating to
Garage Insurance.

relief in sight for the garage in endeavoring to deal with the conference companies.

In censuring these companies for their policy in the past, this committee is in no way, relieving the garage of their responsibility, for they are primarily to blame for the conditions that exist. At the same time the insurance companies should have realized that the garage that is providing all of the modern safeguards should be, and is, entitled to a lower rate than the garage which is not thus equipped.

The only avenues of relief left open were to either form a mutual of our own or locate an independent company (one not a member of the conference) who could satisfy this committee on four points, namely—a financial standing of the highest order, a reputation for thorough business methods and the rapid adjustment of claims, a company whose policies were acceptable to the state commissioner of insurance and the state industrial accident board and a company who would be willing to assist in the immediate working out of a schedule of merits and demerits based on methods of operation, the condition of building, discipline of employes, etc.

A Company That Meets the Situation.

After a large amount of correspondence a company was located who showed a willingness to try and work out such a schedule. To do this a great deal of time was spent by members of this committee and representatives of the insurance company in visiting different garages in order to know and understand actual conditions. After work had progressed along these lines for a few days it was quite apparent that plans as outlined by this committee to the company were both logical and practicable, and as a result of this work the following schedule has been submitted. This schedule will be kept in force until such time as enough garage risks have been written to segregate them into an individual class and to carefully compile statistics, at which time it is quite probable that some changes will be found necessary, and it is hoped will cause a further lowering of rates.

CREDITS TO BE ALLOWED FOR SAFEGUARDING AUTOMOBILE GARAGES IN STATE OF MICHIGAN.

- (1) Elevator.
- | | |
|---|----------|
| | Credits. |
| (a) For garages having no elevator in building | 2c |
| (b) For garages having one or more elevators, each of which is properly protected | 2c |
| Possible credit | 2c |
- (2) General Construction and Fire Protection of Building.
- | | |
|--|-----|
| (a) For building having fireproof construction throughout | 2c |
| (b) For one story building..... | 2c |
| (c) For two story building..... | 1½c |
| (d) For three story building..... | 1c |
| (e) For four story building..... | ½c |
| (f) For five story (or more) building. No credit. | |
| (g) For handrails at all stairways.... | ½c |
| (h) For clean floors and good light.... | ½c |
| (i) For having a sufficient number of both fire extinguishers and sand buckets | 1½c |
| (j) For strict enforcement of "No Smoking" rules | ½c |
| Possible credits | 1c |
- (3) Deportment of Employes.
- | | |
|--|----|
| (a) For a strict speed limit in moving cars in and about garage..... | ½c |
| (b) For prohibition of the use of liquor by employes while on duty both in and out of garage | 1c |
| (c) For the strict enforcement of warning signals by cars on entering and leaving garage and when moving from one point to another point in the garage | ½c |
| (d) For bonding in a first class bonding company of all employes..... | 1c |
| Possible credits | 3c |
- (4) Storage and Handling of Gasoline and Explosives of Every Character.
- | | |
|---|----|
| (a) For the storage of gasoline outside of building and under ground..... | 1c |
|---|----|

- (b) For the elimination of all cans of gasoline and explosives such as brass polish, alcohol painting materials, etc., from garage except while in actual use 1c
- (c) For the use of a first class portable tank with tight hose and connections. 1c
- Possible credits 3c

(5) Disposal of All Waste and Waste Material.

- (a) For the use of metal receivers with covers for all waste, rags, etc. ½c
- (b) For the use of proper receptacles to receive waste gasoline, oils, explosives, etc., and not allowing same to be poured down drain..... ½c
- Possible credits 1c

(6) Repair Shop without Power Machinery.

- (a) For garages having repair shop with no machinery but with a small repair shop consisting of workbench, small tools, etc..... 5c
- (b) For having clean floors and a general orderly and cleanly condition 1c
- (c) For the strict prevention of outsiders coming into shop..... 1c
- Possible credits 7c

(7) Repair Shop Having Power Machinery.

- (a) For the protection of shafting, eliminating of set screws and all projecting points which are apt to catch clothing ½c
- (b) For the protection and covering of belting ½c
- (c) For the protection and covering of gears ½c
- (d) For the protection and covering of emery wheels, grinding machines, saws, etc. ½c
- (e) For the strict use of goggles in all operations where the eyes are subject to flying sparks, particles of steel, dust, etc. ½c
- (f) For keeping space under machinery absolutely clear of debris and keeping the floor dry and clean..... ½c
- (g) For the use of direct drive on all machines 1c
- (h) For convenient means of quickly stopping all machinery by brakes, switches, or otherwise..... 1c
- Possible credits 5c

(8) General Condition of Turn Table.

- (a) For the level of the floor..... ½c
- (b) For having turn table locked at all times when not in use..... ½c
- Possible credits 1c

(9) Work Pits.

- (a) For having work pit properly covered at all times when not in use.... 1c
- (b) For having guards around work pit 1c
- Possible credits 2c

(10) Electrical Wiring and Equipment.

- (a) For protection by railing or wall of all high voltage switch boards; proper fusing of all electrical current lines and sufficient insulation at all contact points 1c
- (b) For properly adjusted and tested valve on air compressor..... 1c
- Possible credits 2c

(11) Boiler Insurance.

- (a) For boiler insurance in a first class insurance company..... 2c
- Possible credits 2c

(12) First Aid Cabinets.

- (a) For the use of a properly approved first aid cabinet..... 1c
- Possible credits 1c
- Total possible credits 31
- Basic rate 81

It will be readily seen that to the garage that is employing the necessary safeguards in the operation of its business, so as to get the benefits of all credits, will lower their premium rate in the state of Michigan from the present conference rate of \$0.81 to \$0.50.

Interinsurance Benefits.

The committee has received a still further concession from this company which is known as reciprocal or interinsurance. By this plan 20 to 25 per cent of the annual premium, which is a part of the savings, is either returned to the insured at the end of each year or placed to his credit to apply on the next yearly premium. For example, assume that the saving shall amount to 20 per cent. A garage is operating in such a manner as to be entitled to none of the credits as specified in the schedule. The rate would then be 81 cents per \$100 of pay roll less the 20 per cent credit at the end of the year, making his actual premium 63.8 cents. To the man who is in a position to accept all of the credits the premium rate will be 50 cents less 20 per cent, or 40 cents.

The company will furnish regular inspections of all places covered by their policies, to see that where credits are originally given that they are not abused and also to make recommendations regarding improvements and when such recommendations are complied with to allow the proper credits.

Their contracts are more liberal than those of most of the stock companies in as much as they provide for the part payment of wages to the injured from date of accident instead of from two weeks after such date as stated in the law of Michigan.

Standing of the Company.

Your committee has carefully investigated the business methods and service of this company, together with its financial standing, all of which have been found to be the best.

The company is approved and its contracts are acceptable to the state commission of insurance and the state industrial accident board.

The insurance committee of the Laundry Men's National Association, the National Association of Building Owners and Managers and the Central Warehouse Men's Club have carefully investigated this company, with the result that upon the recommendation of these committees the associations have adopted and are now subscribers to the insurance of this company.

After work with this company had

been started and it was brought to the attention of the stock companies, two of them came forward with an offer of a reduction in the flat rate as adopted by the conference with the understanding that the name of the company making such an offer must be kept secret, but would not consider a differential.

They have also agreed that if their proposition for compensation insurance is accepted they will immediately arrange for a differential schedule to be applied to public liability both in and out of the garage, including passenger hazard and property damage in and outside of the garage, and we believe that a very substantial reduction can be made in the rates of these classes of insurance.

Fire Insurance.

The question of fire insurance for garages and their contents, not including customers' automobiles, has been taken up in a very exhaustive manner by our National Board of Directors, and it is very probable that their report will be adopted at the convention to be held in Chicago on the twenty-sixth and twenty-seventh of this month.

At this point let it be understood that if this convention accepts on behalf of this association the propositions herein outlined, and this committee strongly recommends and urges that you do, do not think that any garage man can sit idly by and benefit by this arrangement.

Put Your Garages in Order.

It means this: That in order to benefit by what this committee has been able to accomplish, you must stop all your slipshod methods of operation. You must put your garage on a business basis. You must keep your garage in a clean and sanitary condition; you must properly store your gasoline; you must properly protect your machinery. You must properly discipline all employees. The better risk you make your properties, the better analysis of the statistics, thereby lowering the rates. Or in a few words, it must be management in the place of mismanagement.

The inspections made during the work of this committee have shown a vast improvement over that of last summer, but there is still a great chance for further work along these lines.

BANKING.

This committee has done nothing further since the October convention regarding the question of banking, for the reason that we considered the question of insurance to be a more important one at the present time, also that such garages as install modern accounting methods and adopt the suggestions offered by the committees on better business, insurance, etc., will automatically place themselves in a position to receive the recognition of the bankers.

The third and most important reason

is that this committee as appointed consists of a chairman and six other members. Your chairman has been able to get replies to his letters from only two, and has the active support of only one. Mr. Hurley has entered into conference on several occasions and has written letters setting forth new ideas for the advancing of the work of this committee.

RECOMMENDATIONS.

Your committee respectfully suggests that this convention adopt resolutions covering the following points:

1. That the insurance committee be empowered to close the necessary con-

tract with the Employers' Indemnity Exchange of Kansas City to make the rates and differential schedule herein proposed effective and that the officers of this association and members of the insurance committee be authorized to sign an endorsement of this company and its rates.

2. That the insurance committee be empowered to complete negotiations with the Employers' Indemnity Exchange of Kansas City or such other company as it may deem advisable for a differential covering public liability (including passenger hazards) and property damage, both in and outside of the garage, and

take such steps as may be necessary to make such schedules effective without further action by the state association.

3. That this convention approve and ratify, at this time, any action that may be taken by the national convention to be held in Chicago on January twenty-sixth and twenty-seventh of this year relative to the question of fire insurance.

Respectively submitted,

Committee of Insurance and Banking.

W. C. HURLEY, Chairman.

The recommendations were adopted on behalf of and by the members of the Garage Owners' Association of Michigan.

Adapting Interinsurance to the Garage Field

[A thoughtful and thorough review of the insurance question and a statement of the benefits Garage Owners can derive from a properly conducted Interinsurance organization. A summary of the several addresses by R. A. Wilson, secretary of the National Automobile Trade Association before the recent conventions of garage owners and car dealers.]

Whether the medium through which contracts of insurance or indemnity are written be a stock company, mutual company, group of underwriters or an interinsurance organization, the intention and purpose is that the policy holder shall contribute, in what is commonly termed premiums, an amount necessary to defray the losses and expenses of such companies or underwriters, and, where such companies or underwriters are organized for profit, a legitimate amount for this purpose.

You are doubtless familiar with the stock or so-called old line companies' methods of underwriting, wherein you pay a premium for your insurance to these companies through the medium of a local agent, which is charged to expense on your books and from which there is no return except to replace property destroyed by fire. The profits derived from underwriting the risk revert to the stockholders and the surplus which is accumulated, and termed the surplus for the benefit of policy holders, reverts to the stockholders upon the liquidation of the company.

Where the Mutual Fails.

In the case of mutual companies, a return is made to the policy holder for a portion of the saving effected in underwriting his risk and the balance is placed to a surplus account which is usually termed surplus to policy holders, but this surplus is never distributed to the policy holders, and upon the retirement of a member from a mutual company, his portion of the surplus remains to the credit of the other policy holders. Mutual insurance companies, as a whole, have been

unsuccessful for the reason that in most cases their expenses have been so high that it has been impossible to make a material return to the assured, and in a great many cases it has been necessary to levy assessments in order to liquidate the companies. This is not true in every instance, as some mutual companies, through careful management and administration, have been eminently successful in their operations and offer as sound indemnity as any contract of insurance written.

The interinsurance organizations have been more successful than any class of insurance companies or underwriters, for the reason that the good features of both stock and mutual companies have been combined in this plan and the weak points have been eliminated.

Interinsurance the Practical Plan.

Practically every successful trade association in the United States has been called upon at some time during its existence to investigate the question of insurance for its members, and after very thorough investigations by committees appointed from these trade associations, the majority have adopted interinsurance as the practical plan, not only to reduce the insurance cost on the policies underwritten by such interinsurance organizations, but as a plan whereby competition would be created on their given classification, thereby creating a demand for their business, which has had the tendency to reduce their tariff rates.

In this connection I beg to state that Associations of such industries as the bankers, laundrymen, brewers, ice manufacturers, department stores, wholesale grocers, canners, hardware dealers and a great many others have adopted the plan of interinsurance and as a result the rates on these classifications of properties have from time to time been decreased, and those associations which have not had competition for their members have suf-

fered proportionately on account of this lack of competition.

Interinsurance for Lumberman.

One of the most successful associations and one that has accomplished the best results for its members is the association of members owning and operating retail lumber yards. Eighteen or twenty years ago the average rate on lumber yards, especially in the middle western states, was approximately \$1.80 and the rates were being continually increased. The lumbermen, at their conventions, passed a resolution protesting against the high rates levied by stock companies, and addressed a letter to the rate maker of the state of Kansas in which they stated that, unless the rating bureau discontinued increasing the rates on retail lumber yards, they intended to advocate a system of interinsurance for their members. In reply to this letter they were advised that their threat to establish an interinsurance organization did not disturb the companies in the least, as the companies considered the rates on lumber yards too low. After a very thorough investigation the lumbermen did organize and perfect an interinsurance organization for the underwriting of their risks, and as a direct result the rates on lumber yards were decreased until today these rates are as low, in some instances, as 55 cents or 60 cents.

I see no reason why the National Automobile Trade Association should not be able to secure equally as good results for its members, and if the members of The National Automobile Trade Association will give their individual and collective support to an interinsurance organization, established for the purpose of underwriting garage properties, we feel sure that results equally as satisfactory can be accomplished.

Decreasing the Fire Hazards.

When an industry is in its infancy the men engaged in it are, to a certain extent, making experiments. They invest the

least possible amount of money to carry on their business. The construction of the risks from a fire standpoint are inferior, for the reason that if the industry becomes a success, they will place their affairs on a businesslike basis, and the properties as regarded from a fire standpoint are continually bettered as the association or industry prospers.

This is especially true in the automobile industry. When it first became necessary to establish garages to take care of the automobile trade, livery stables, old warehouses and frame shacks were used, as a rule, for the storage of cars and as machine shops for repairing cars. The loss ratio on this class of risks was naturally very high, and the rates levied against these properties was proportionately high. However, these conditions do not exist today as the construction of garage properties has been materially improved and is being further improved every year. The rates on these properties have not been proportionately decreased as the hazards have decreased, for the reason that the owners of garage properties had no competition for their business. A large proportion of garages are today either fireproof or semi-fireproof constructions and it is impossible in these risks to sustain a loss of over 40 per cent or 50 per cent in the event of the most serious conflagration.

Present Rates Unfair to the Garage.

I have found in some instances where detached garage properties, with no exposing hazard, constructed of brick and concrete, with a cement floor and one story in height, are charged as high as 593 per cent of the basis rate on account of occupancy. This is an unfair charge and I wish to go on record in stating that if the garage owners will give their support to an interinsurance organization for the purpose of underwriting their risks, this exorbitant charge, to a great extent, will be eliminated and it will only be a question of a few years until garage properties will not be rated higher than the average mercantile risk is rated today.

If the garage owners will heartily support the organization which I have outlined, we shall immediately create a fight on us by the stock company interests as every interinsurance organization has in the past. But I believe that the garage owners will see it to their advantage to continue to support their own interinsurance organization and realize it is only through the continuance of such an organization that they can expect a continuance of their reduction in rates, which they can unquestionably secure.

An Authoritative Opinion on Interinsurance.

Best's Insurance News, considered the authority on insurance companies in the United States, in a recent article stated: "During the last fifteen years the business of interinsurance has grown with re-

markable rapidity. The section of 'Best's Insurance Reports' dealing with interinsurance and Lloyd's organizations contains reports upon no less than seventy-three of the former class; and their membership includes the leading individuals, firms and corporations engaged in many of the most important lines of trade. Their aggregate annual premium income runs far into the millions of dollars; they pay their losses promptly and fairly; they furnish reliable indemnity for considerably less than the rates charged by the stock companies, because they escape many legitimate expenses of the latter, due to the wholly different character of their business and their service to the public; and by every economic standard they demonstrate their right to exist. In the face of all this efficiency, however, many agents of the 'Old Line' companies and many state insurance officials endeavor by petty persecution to drive them from their territory."

However, these attempts have been unsuccessful and today the interinsurance organizations are an established success and twenty-four states have passed laws whereby these exchanges, when properly managed, may secure a license and come under the supervision of their departments and it will only be a question of a few years until every state in the Union will pass a law regulating interinsurance as adopted at the recent convention of the Superintendents of Insurance of the various states.

How to Start the Work.

In establishing an interinsurance organization for the underwriting of the risks of any given class of trade, it is necessary to secure an average on the maximum amount of the line to be underwritten. This can be accomplished in three ways.

First—To secure enough subscribers who will place their insurance on a given rate. This necessitates the cancelling of their present policies on the short rate basis charged by the stock companies and our experience in this matter has taught us that it is very hard to secure sufficient number on a given date to constitute an average and to make the organization conservative in its underwriting.

Second—By a system of reinsurance until such time as the exchange has sufficient number to enable the cancellation of the reinsurance policies and the carrying of the risks by the exchange.

This plan also has its disadvantages for the reason that the cost of reinsurance is excessive and the stock companies do not care to assist in establishing an interinsurance organization which will mean competition for their business.

Third—To establish a department at a successful interinsurance organization wherein the members will underwrite the new classification until they have sufficient average on their insurance to segregate the new members and allow them to carry their own risk. This is the most logical plan and the one we propose for your industry.

Work of the Indemnity Exchange.

Through the medium of the Indemnity Exchange thousands of the most prominent merchants and manufacturers in the United States have been underwriting their risks for the last twenty-four years. The saving effected for the members both through dividends and reduction in rates runs into the millions of dollars for this organization alone. Over \$2,500,000 has been paid in losses and it is the second oldest organization of this kind in the United States.

We propose to establish at this exchange a department for the purpose of underwriting the garage properties of superior construction and by accepting only those risks where there is no moral hazard, widely scattered and by insisting on attention being given to order, cleanliness, construction and fire prevention, we will be able to do more for securing equitable rates on the garage properties than by any other methods. We will escape the moral hazard and conflagration losses which have cost the stock companies and underwriters in the United States more money than all the rest of their losses combined. But we can only make this organization successful by the whole hearted support and co-operation, both individually and collectively, of the members of the firms engaged in this line of industry.

Strength of Unity.

I remember seeing an article several years ago entitled "Thoughts on Business." I do not know that I can quote this in its entirety but the thought was something like this: "The strength of unity is indisputable. Few things do more to retard the natural progress of a business or a movement than a lack of intelligent co-operation."

"There are two chief reasons for lack of co-operation:

"One is that men do not agree on what is best to be done.

"The other is that selfish motives deceive men into thinking that they can get more by going alone.

"The remedy for the first is comparison of views, exchange of ideas, and the establishment of the right idea in the minds of all.

"The remedy for the second is the knowledge that the common good is also the real good of the individual.

"Selfishness is often another name for ignorance. If a man desires to obtain the most good for himself he should know that his legitimate share of a great common good is greater than any possible good he could obtain for himself alone. The narrow-minded man fishes with a hook and thinks to have the whole catch for himself. The broad-minded man joins with others in using a seine—and his portion of the catch exceeds by far what he might get with the hook.

"Co-operation is the most effective way

to secure the most of what each one desires to obtain."

Support of the Garage Owners Needed.

As previously stated, if the owners of garage properties and those trades affiliated with it will give their support to this organization, there is no question in our minds but what it will be an eminently successful organization that you can point to with pride, as an organization operated and owned by the garage owner and

for the garage owner.

We have already received the endorsement of the Michigan and Illinois associations and I trust that this convention will go on record by a unanimous vote of all members present as heartily in favor of this movement, as I sincerely believe it will do more to eliminate the evils of the fire insurance feature in garage properties than anything which can be done.

Kerosene Carburetors Are Held to be Impracticable

[Report on the Feasibility of Kerosene Carburetors by C. R. Collins, of the Stromberg Motor Devices Company, Chicago, Ill.]

In studying the fuel question, and the great increase in price of gasoline, there has been considerable question as to whether or not it would pay the carburetor manufacturers to bring out an instrument that would successfully handle kerosene. While Secretary Lane is correct in the assertion that "Authorities agree that the automobile and other internal combustion engines are primarily responsible for the increased consumption of gasoline," he is faulty in adding "That a kerosene carburetor would at once go a long way toward relieving the present shortage." It is evident that certain conditions have not been taken into consideration.

In the first place, there is no definite dividing line between kerosene and gasoline, and it is impossible to state just where one begins and the other leaves off.

Gasoline and kerosene are composed of practically the same elements and what we did buy for kerosene in the past, when the higher grades of fuel were on the market, is very similar to the gasoline of present day standard.

Speaking of gasoline and kerosene from here on the grades which are now being sold will be the ones to be considered.

In refining the crude oil, the companies are now distilling in such a way as to obtain from four to six times more gasoline than previously obtained.

First the higher grade products are drawn off; the balance is then distilled for all elements that can be used in gasoline which range from a seventy-eight test down to a forty-five. There being a great deal more of the lower grades in this mixture than of the higher, it is necessary to subject it to a treatment to bring the specific gravity to a point where it will operate a motor in a satisfactory manner. This is done by subjecting the entire volume to a very high pressure and heating, being extremely careful that all air has been expelled. This operation breaks up the molecules, raising the

specific gravity. Before this breaking up process takes place, these molecules are large, containing approximately twenty parts of carbon to forty-two parts of hydrogen; but after the process they are found to contain around ten parts of carbon to twenty-two parts of hydrogen, each giving a test gasoline of about fifty-eight.

By drawing off this great amount of so-called gasoline, it leaves very little of the original product to be refined as kerosene, and if a kerosene carburetor was placed on the market which would function in a satisfactory manner, it would increase the kerosene consumption. This increase would necessitate the production of more kerosene, and for this reason certain of the elements now found in gasoline would have to be transferred to the lower product, causing an increase in the price of kerosene as the demand advanced.

Another reason why kerosene cannot be used as a fuel is on account of the difficulty encountered in starting. If it were possible to obtain sufficient heat right at this time, while the motor is cold, a starting could be easily effected, but without it it is practically impossible. This necessary heat requirement cannot be taken care of in the carburetor, but would require an adaptation in the motor. The reason for this is that even though it is possible to vaporize kerosene in a carburetor, it would condense on the way to the cylinders, unless higher degrees of temperature are maintained than now used. If the kerosene were heated in the carburetor before being measured with the air, as in the float chamber, this would cause certain elements of the kerosene to carbonize and form soot, clogging up the passages.

By having the exhaust manifold surrounding the intake manifold, enough heat can be obtained after the motor is started; but it is at the moment of starting that the heat is required, even more than at any other time.

The Stromberg Motor Devices Company, of Chicago, have been making tests along this line, and the foregoing is what these experiments have brought out.

GARAGE RATES IN SEATTLE.

Excellent progress is reported by the Washington Motor Trades Association, with headquarters at Seattle, Wash. This organization was perfected recently, and embraces all branches of the automobile trade of the state.

It is significant that this organization finds public expression through the garage man. That, of course, is the point of contact with the public, and the relations between the various factions of the automobile industry are necessarily somewhat of a family character, while those between the garage men and their customers are of a public character.

After a thorough canvassing of the garages of Seattle, made to ascertain the charges for service, a schedule of rates fair and reasonable to the car owner, and insuring the garage man a living profit, was compiled. This schedule is given. Presumably it represents what charges should be made to insure profit, rather than forming the basis on the actual working rates of the garages of Seattle.

It will be interesting for garage men of other localities to check this with the charges they make:

LIVE STORAGE.

	Per Month.
Limosines — Storage, washes, polishes, calling for and delivering car	\$30.00
Touring cars and roadsters—Storage, washes, polishes, calling for and delivering car	25.00
Touring cars and roadsters—Storage, washes and polishes.....	20.00

SEMI-LIVE STORAGE.

Storage and two washes and polishes per week	\$15.00
Storage and one wash and polish per week	13.00
"Dead storage"—Storage only.....	10.00
"Entirely dead"—Storage.....	5.00
Night storage, per night.....	.50
Night storage on motorcycles, per night .....	.25
Shop time, per hour.....	.80
Garage times, per hour.....	.50
Selling price on gasoline, above cost..	.02
Wash	1.00
Washes and polishes.....	1.50
Storage trucks	12.00
Service of mechanic if required.....	.80
Service of car and driver.....	3.00
Service of helper if required.....	.50
Wrecking car, if required, per hour..	5.00
Burning out of cylinders.....	.75
Cleaning engine, per hour.....	.80
Changing tire in garage.....	.50
Vulcanizing tire .....	.25
Repairing puncture .....	.25
Repairing blowout.....Up from ..	.25
Use of wash rack.....	.50
Bench work, per hour.....	1.00
Machine work, per hour.....	1.00
Day storage rates (from 7 a. m. to 5 p. m.) .....	.25
Storage, four hours or less.....	.25
Each thereafter .....	.25
Extra driver, per hour.....	.50
Expert fitting, bench work.....	1.00

GARAGE RATES FOR ELECTRIC CARS.

Full service, storage, washing, delivery and calling for car, charging, battery care and inspection once each week	\$30.00
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RESOLUTIONS

BY THE NATIONAL RETAIL AUTOMOBILE TRADE ASSOCIATION.

FAIR TRADE BILL ENDORSED.

Whereas, there has been introduced in the National House of Representatives a bill known as the Stevens Bill, the object of which is to create what is known as fair trade conditions and, therefore, the elimination of so-called price-cutting and unfair discrimination by manufacturers, wholesalers and jobbers towards retailers, and retailers towards consumers, and

Whereas, this measure enacted into law and placed upon the statute books of the United States would be of material benefit to a large number of manufacturers, wholesalers, jobbers, retailers and consumers,

Therefore be it resolved by the National Retail Automobile Trade Association in convention assembled that we give this bill our hearty approval, and

Be it further resolved, that our secretary forward a copy of this resolution to the American Fair Trade League, Fifth Avenue Building, New York.

INTERINSURANCE ENDORSED.

Resolved, That we, National Retail Automobile Trade Association, in convention assembled, after receiving the report of the investigating committee, hereby adopt the plan of Interinsurance, as practiced at The Indemnity Exchange, and pledge our support to M. J. Dorsey & Co., managers thereof, in the perfection of an organization for the underwriting of fire insurance policies for the motor trades, and we recommend this plan of insurance to those eligible to the organization.

JOINT RESOLUTIONS BY THE NATIONAL RETAIL AUTOMOBILE TRADE AS- SOCIATION AND THE GA- RAGE OWNERS' ASSOCIA- TION OF ILLINOIS.

DEFINING THE LEGITIMATE AU- TOMOBILE DEALER.

Whereas, considerable degree of confusion, which has been apparent in the automobile business, respecting the relation between the manufacturer, distributor and dealer, has been brought about by a lack of clear understanding as to what constitutes the legitimate automobile dealer, and

Whereas, it is the recognized purpose of this and other legitimate automobile trade associations to promote the general welfare of all interests in the industry, and to eliminate friction and discord in the customary contractual relations existing, therefore,

Be it resolved, that it is the sense of this association, assembled in regular convention, that the following definition be proposed as outlining the qualifications of the legitimate automobile dealer:

First. The legitimate automobile dealer shall have properly executed the formal contract offered by the manufacturer or distributor with whom he has an account, and shall have fully complied with the requirements thereof, respecting such matters as deposits, formal orders, warranties, etc.

Second. He shall provide proper headquarters for the sale and exhibition of the product supplied by the manufacturer or

distributor covered by the above contract.

Third. He shall provide suitable facilities for properly pursuing the interests of his patrons with respect to the care and operation of the cars sold by him in accordance with a reasonable local service warranty and in full accord with the warranty of the manufacturer.

DEFINITION OF LEGITIMATE DEALERS.

Whereas, there has been considerable comment in regard to who is a legitimate retailer of automobile supplies and accessories,

Be it resolved, that a retail dealer of automobile supplies and accessories be defined as one who buys in bulk or quantity for resale to the consumer, in accordance with established trade methods, and maintains sufficient general stock to meet the requirements of his trade.

TO BETTER UNDERSTANDING WITH CAR MANUFACTURERS.

Whereas, there is a great deal of feeling between garage men and the manufacturer of both gasoline and electric cars and their authorized service stations and agents.

And whereas the garage men feel that they are being wrongfully charged from these sources with the improper care and repairing of cars, and whereas this condition is causing a hardship and a great loss of legitimate business to all concerned,

Now, therefore be it resolved that this convention delegate to the officers of the Garage Owners' Association of Illinois and three additional members to be appointed by the president to act as a committee to wait upon the state manufacturers' association of both gasoline and electric automobiles, and to arrange for a conference whereby better conditions may be obtained and the automobile industry in general be preserved.

Be it further resolved that a copy of this resolution be sent to all state associations and to all trade journals and their cooperation asked.

DIFFERENTIAL INSURANCE SCHEDULE ADOPTED.

Resolved, that the insurance committee of this association be empowered to close the necessary contract with the Employers' Indemnity Exchange of Kansas City or some other company, to make the rates and differential schedule proposed effective, and that the officers of this association and members of the insurance committee be authorized to sign an indorsement of the above named company or some other company and its rates.

Resolved, that the insurance committee be empowered to complete negotiations with the Employers' Indemnity Exchange of Kansas City or such other company as it may seem advisable for a differential covering public liability (including passenger hazards) and property damage both in and outside of the garage, and take such steps as may be necessary to make such schedule effective without further action by the association.

FAIR DEALING WITH THE JOBBER.

Whereas, considerable confusion has existed in the relation between the jobber and legitimate retail dealer, due to an apparent lack of consideration of the dealer's rights in the sale of the products distributed by the jobber, furnishing such products to the consumer at prices not only equivalent to

but in some instances less than covered by the quotation to the dealer, and

Whereas, it is the strong belief of this association that this confusion results from a lack of the realization of the interdependent relations of the jobber and the dealer, and

Whereas, there seems to be a strong sentiment promulgated by the National Association of Auto Jobbers to remedy those conditions which are harmful to the welfare of all interested in the resale of automobile supplies and accessories, therefore,

Be it resolved, that this association, in convention assembled, express its earnest desire to support all legitimate plans of the National Automobile Jobbers' Association to establish mutually helpful and profitable relations with the dealers, and

Be it further resolved, that a committee of three duly authorized members of this association be appointed to investigate present methods and business practices in effect in the various districts of this state, with the view to promoting more helpful and profitable relations between the jobber and legitimate retail dealer and by proper publicity and such other methods as may seem justifiable to discourage the maintenance of policies that are harmful to the interests of those mentioned herein.

PREMATURE ANNOUNCEMENT OF CARS.

Whereas, a large number of conventions of automobile trade associations of various character have been generally marked by resolutions of protest against the production policies pursued by most of the automobile factories in this country, by virtue of which large overhead expenses are incurred by the dealers at the time when their sales income has reached its minimum, and very material financial losses are incurred in that period of the selling season when the demand for cars is at its maximum point, and

Whereas, a considerable number of automobile factories have seen fit to revise their policies with respect to the announcement of new models and their production schedules in such manner as to anticipate the needs of the dealer and promote his general welfare, therefore

Be it resolved, that this association, in regular convention assembled, take particular pleasure in offering an expression of their appreciation to the factories that have made such changes as mentioned above, and

Be it further resolved, that a copy of this resolution be submitted to the National Automobile Chamber of Commerce, 7 E. 42nd street, New York City, and

Be it further resolved, that, so far as possible, a copy of this resolution, with a proper letter accompanying it, be mailed to such factories as have responded to the plea of the dealers.

BY THE GARAGE OWNERS' ASSOCIATION OF ILLI- NOIS.

Resolved, that we, the members of the Garage Owners' Association of Illinois, assembled in convention this twenty-fifth day of January, 1916, individually agree to give our support to an Interinsurance organization, whereby owners and operators of garage properties may secure fire insurance at equitable rates and at a cost they should rightfully expect to pay, whereby competition for fire insurance on garage proper-

(Continued on page 28.)



Born at Chicago January 26-27

The National Automobile Trade Ass'n

The Opening Session.

"The Second Annual Convention of the Associated Garages of America is now open for the transaction of business which may come before it," announced President Robert Bland, as he called the meeting to order in the Green Room of the Congress Hotel, Wednesday afternoon. Continuing, he said:

We now have been in business one year. We started without a dollar in the treasury. We are now about \$250 in debt. We have about 1,500 members now and there is substantially \$1,500 due the organization for dues.

We stand here to render an accounting of our stewardship to you and we feel proud of the record we have made. No president ever elected to a position such as I now occupy ever had better co-operation than I have had.

We now have four of the leading states in the Union, Illinois, Michigan, Ohio, and Iowa, the latter with 1,000 members, and we are proud that we have been able to do something during the year for the National organization.

Broadening the Scope of the Work.

There are a number of local organizations throughout the states and the Union, such as Pennsylvania, and we now are ready to start in and push the local organization.

The first and most important matter we are called upon to consider today is a plan submitted to the Board of Directors today. This is a plan for the perpetuation of this organization and calls for the employment of a high class man to serve as secretary and manager of the organization and we are satisfied that the provisions of the contract will be very pleasing to you.

We will hear a report from Mr. Bean, who has devoted months and months of time to the work of digging into the best plan of insurance to be recommended and adopted for your benefit. We will also hear a report from a man who has been interested in the cut rate movement, and we have other business of this character that will be of interest to you.

Before we proceed along these lines, let me ask Mr. Jones, of Akron, Ohio, pardon me, Summit county, to address us along the lines of organization.

The Man From Summit County Talks.

In response, Mr. Jones of Summit county, Ohio, said:

This national organization, while it may be small in membership, is large in its dealings with other organizations. We need the co-operation of men who can think. There are questions coming up from other organizations and they are thought out for the interest of the members of those organizations. They regard us and our problems as they regard any other business question. It is a matter of business pure and simple—cold business.

We are facing the problem of further organization. We must do a great many things that bear on many questions that come up.

The National organization is no little thing for getting together to hear speeches, enjoying banquets and electing officers and then going home under the impression that

you are done for the year. You must keep the organization in mind all the time.

Set Them Thinking.

When you come into our annual meetings you must prepare for that meeting. We have started something for the automobile dealers for the purpose of setting them to thinking. We have one of the biggest two or three years' work ahead of us that we have ever had as garage men. As I look at the work I think we have the biggest or one of the biggest propositions I ever have had anything to do with.

We have good men and bad men in our ranks and in our association. Today I saw a moving picture showing a dealer coming to a large city and inspecting conditions of a salesroom of a city dealer. He became disgusted with his own. He goes home and his foreman meets him at the door and he slaps him and says: "Get busy and clean up around here." The next picture showed the place cleaned up.

That is one of the things we have to help through organization; that is, help the other fellow. We can all come up to that

cause he has worked it out and found it is a good thing. Every man who has a cost system has a good thing. When you get a cost system established in a garage or by a dealer, you will eliminate one price cutter.

Doing Business with Men You Know.

Organization is a good thing. Gets the boys closer together. Get to know one another. You like to do business with a man you know. We can take the government, for instance. The president, right at this time, is talking of this thing preparedness. As a nation we are not organized, but we should be. He will make a tour of the United States and place the question before the people as he sees it.

Strong Enough to Get Something.

There is this we are going to get from our organization, that is, when you come to your legislation, we can go before Congress and before the various states as a body and get something. Then if you have a letterhead, like, for example, the national association of garage owners, that makes a better impression than if you write a letter on your business stationery.

I hope Mr. Wilson—R. A., not Woodrow—will have forty-two states interested by this time next year. We must build and build from the bottom.

We have this gasoline tax coming up, and the vehicle tax and other things that are going over our heads because we have no national organization to handle them. We are paying enough for gasoline now without paying an additional 2-cent tax.

I was talking with Mr. McClellan, an oil man, and he says there is as much crude oil in Oklahoma now as there ever was. Talking about organization! Look at the Standard Oil Company. They understand each other.

Put Meat on the Skeleton.

The majority rules. Make the organization as big as you can make it. Put your shoulders to the wheels. The majority rules. Go with the majority.

We have a very good skeleton without any meat on it. Maybe it will look a little better when we get back here a year from now. Let us all pull together. Fight out your questions and if you are whipped get up and go with the victors. [Applause.]

Business.

Then followed roll call and seating of the delegates.

The chair stated that a short time ago New York had the banner organization, that has lapsed for the time being, but that steps were being taken to place the state back on the association map in a stronger position than it ever before occupied.

F. E. McCall, secretary, read the minutes of the last annual meeting, which were accepted without correction.

The Man Who Discovered Jones.

Responding to a call for a talk, Andy Auble, Jr., of Akron, Ohio, said:

I was one of the 170 men to try to organize the first National Auto Dealers' Association in 1905. That is why I am accepted as one of the antiques of the industry.

OFFICERS

of the

National Retail Automobile Trade Association.

Robert Bland, Evanston, Ill., President.

F. A. Bean, Detroit, Mich., Treasurer.

R. A. Wilson, Chicago, Ill., Secretary and Manager.

Vice-Presidents—

Jacob Friedman, Dyeraville, Iowa.

W. B. Taylor, Rockford, Ill.

L. C. Steers, Detroit, Mich.

K. R. Vaught, Indianapolis, Ind.

E. T. Jones, Akron, Ohio.

standard of cleanliness. We can do this through organization.

We are afraid of one another. We cross the street if we see a fellow dealer or a garage man on the same side we are on.

We are now getting the dealers of Akron together. We called a meeting and asked them to select officers. The nominating committee came back with Jones and Auble for the principal offices. We told them we did not want office and asked that they select nominees from the floor.

Benefits of Organization.

Continuing, the speaker said the organization really had nothing to sell; that it was not a matter of selling for the organization; that when a man was asked to come into the fold he was not doing the man who asked him nor the organization a favor by responding, but doing himself a favor. "A man tramping on his feet all the while is not going to get anywhere."

When it comes to selling this proposition we have nothing to sell. We are merely inviting a man to get into good company. I am interested in a great many things connected with the organization. The reason Taylor is a cost system crank is be-

One of the biggest things, possibly the only big thing, I ever did was to discover Jones. Just what that discovery meant to me gives me an idea of what organization really means.

When we dig into the history of this automobile business we realize we have an uphill job. If we can't make it on high, we'll make it on second speed.

You know the average garage is defined as a hole in the wall with a dirty floor. That is a condition that has been corrected and is being corrected. We are sweeping off the dirt and the dirty deals we have allowed to accumulate.

Building a New Industry.

We started a new industry and we have been having our hands full building it up. Our customers are our means of livelihood. We cannot take a man's money unless we perform a service that he is willing to pay for.

Do you realize, gentlemen, that there are a great many things men of education, so-called, who have spent their time and money to be educated, and make their money by giving advice, who come to you for advice? They ask you all the questions there are to be asked, get their information and go away and do not even say "Thank you." Ask that same legal light a question and you get a bill from him, "One conference, \$10.00."

You know as much about your business as any professional man in the United States knows about his. Have you not the right to demand payment for that service as he does? You pay the doctor \$2 a visit.

He told the story of the garage man and the doctor, the latter having protested a bill for repairs on the ground that the repair man had not done the car one cent's worth of good. The response was: "All right, send back all the money you have collected from widows whose husbands you doctored and I will cancel this bill."

He called for greater co-operation, for the spirit that would make the business right in every respect. The largest garage in the country, he said, had only 75 men working in it. He operates one of the largest, the pay roll showing thirty-five employees.

Turning on a Small Margin.

Taking up the question of selling, he said complete records show it costs 19 to 26 percent to merchandise goods and that garage men were trying to make money on a margin of 20 percent.

You are trying to give service. That term "give" is one you cannot afford to use. I never could get an idea I wanted from a cheap man.

A man complained because he said he understood I had said he was the highest priced man in town. I told him I was trying to establish that reputation for myself.

Proper education will help keep the cars on the road. Free service has been the undoing of many and many a man who started in business and who intended to treat everybody right and ended up by doing himself an injury.

Getting Akron Together.

I have been asked to explain how we got our dealers together. Jones and I got together first. We got the boys together as an organization nearly ten years ago. That was the first attempt. The next effort was six years ago. A few years ago we got them all together in a little banquet.—Jones

and I paid for it—and around the board were 24 or 25 and without a single exception they paid their dues that night. If a man does not treat every one right we have access to his records. Work of the same character has been undertaken by other organizations.

Professional Ethics.

The medical profession has today what is termed professional ethics. You cannot go from one man to another in medicine. You must go back and pay up. We want ethics of that sort, and there will be a time in the not far distant future when that will be the rule among garage men. A real garage will mean something to the public then.

Our business is becoming more complicated. There are, for example, more complications in electric lighting and starting systems now than there were in the entire car ten years ago. When we garage men render service we are entitled and should receive pay for it. We must get on the up grade instead of on the down grade.

The chair directed attention to the Stevens fair trade bill now pending before Congress which, he said, should be considered by the convention. He explained, briefly, the purpose of the bill, which he thought would be of exceptional benefit to garage men. On motion the resolution committee was instructed to prepare a suitable resolution in favor of the measure, urging members to seek to influence their representatives and senators to vote it and to work for its passage.

Legislative Work in Iowa.

J. Friedman, Dyersville, Iowa, president of the Iowa Retail Auto Dealers' Association, told of his experience in securing favorable legislation for the threshing interests of that state. Success was due to persistent personal effort on the part of the speaker and others.

On the subject of association values Mr. Friedman said it largely was a question of what interest the members took in the work. At the same time, he said, a large membership was necessary to success in either state or national work. Regarding the Iowa organization, he said:

Success of the Movement in Iowa.

The Iowa dealers have made a great success of their organization to this time. We have been getting members at the rate of one hundred a month. There are a number of other states that can be brought into line and we can soon establish a large national organization. Iowa will have 1,200 to 1,500 members within a year.

If forty-eight states in the Union can be harnessed together and if then we should go to Congress and say "Here are 40,000 men who want such and such legislation," it will have some weight.

The chair called attention to the great amount of work to be handled at the next session and then called for a vote on a motion to adjourn, which motion prevailed.

THURSDAY MORNING SESSION.

The first business was the appointment of an auditing committee to audit the books and report at the afternoon session.

Insurance.

The chair called for the report of the insurance committee, and F. A. Bean, of

Detroit, responded, in part as follows:

I guess everybody here has heard what I have to say. The committee appointed at the Grand Rapids convention last May to investigate insurance conditions in Michigan did not do any work until along in July. The first work undertaken was to investigate the present rates for compensation, liability, and property damage. At the start we knew practically nothing about insurance questions except that we were being unjustly assessed by the companies. They would give a garage owner that was safeguarding his plant and men in every practical way exactly the same rate as the man who did not know there was such a thing as a safeguard.

He said that insurance officials held the garage man was working a hardship on himself. A thorough investigation was made, and the results of that investigation, embracing conditions at more than 100 garages in Michigan, Indiana, Ohio and Canada, were outlined in the report he submitted to the members of the Garage Owners' Association of Michigan at the annual meeting of that organization the previous week, which is printed in full elsewhere.

A Galaxy of Specialists.

Frank Roderus—I would like at this time, if there is no objection, to make a few remarks that are based on opinions gathered at this convention.

This is the day of specialists. Specialists, as a rule, can only be employed at large salaries. This organization has a number of specialists who are entitled to large salaries for their services, but whose services you secure for nothing.

J. C. Thorpe is a specialist in convincing manufacturers that the premature announcement of cars is detrimental to the interests of the manufacturer as well as to the interests of the dealer.

In Jud S. Joslyn this organization has a specialist in cost accounting.

Mr. Bean is another expert who probably could command a fat salary from some insurance company for his knowledge and industry.

L. C. Steers is another specialist. With all due credit to all the others, Steers is the greatest specialist we have because he is a specialist in organization.

No other organization ever enjoyed greater benefits from the services of specialists than have the garage men.

A motion to receive the report submitted by Mr. Bean and give the author a rising vote of thanks was carried with a will.

Resolutions.

In the absence of Secretary McCall, J. C. Thorpe read the resolutions reported by the committee. The text of these resolutions is given elsewhere.

Advertised Automobile Prices.

A. Auble, Jr., of Akron, Ohio, pointed out the confusion resulting from the advertising of automobiles f. o. b. factory, and asked for the passage of a resolution calling for the making of prices at destination. He said that one of the things the dealers of his city had endeavored to combat was the intangible character of the contracts for the sale of cars.

J. C. Thorpe—This particular point that Mr. Auble has presented has bothered our



Harry Single, Cincinnati, Ohio.

members as much as anything else. I think there are a lot of other changes that can be made. I believe, though, that the factories are doing the only thing they can do in quoting their cars. If any locality or any trade association attempts in any way to advertise automobiles at a different price than is published in the catalogs they will immediately raise a question in the mind of the prospective customer, who will say, "Here is the factory catalog price of \$985 and you advertise the price at \$1,005." That places the dealer on the defensive and he must justify that additional \$20.

Someone Must Pay the Freight.

An argument that is clear cut and one that will meet with general consideration on the part of the customer is this: "Someone must pay the freight. I, the dealer, am not going to pay it because I have only a reasonable business profit on the sale of an automobile and freight is a part of the cost." I see no way of handling this question except for the dealers themselves to stand together on securing freight from the buyer. If there is a definite plan which is business like and fair I would vote for it in a minute.

Definite Contracts.

A. Auble, Jr.—That is the very thing we have been trying to eliminate. The published prices are misleading. The really important thing is to have a definite contract with your customer. We should advertise a price at our point of delivery that includes freight.

E. T. Jones—Our car is priced at \$1,375. Our price is \$1,395. I simply tell everyone that we have to pay the freight. I have carried a line to the effect that the price we make is the price at destination. Our freight is \$17.50 and it costs \$2.50 to unload the car. I am doing this right along now. The Hudson car is \$1,395 instead of \$1,375. The manufacturers are willing for the dealers to do this; in fact, glad to have them do it.

The Benefit of National Advertising.

R. E. Beedee—If we, as dealers, are to receive the benefit of national advertising carried on by the manufacturers, it will be absolutely necessary for the manufacturers to quote the factory price or to eliminate price altogether. It is impossible for the manufacturer to quote delivered prices intelligently unless he used all his space to quote prices. You know, of course, that the country is divided into freight districts, the Eastern, Southern, Mississippi River Crossings, Missouri River Points, the Pa-



K. R. Vaught, Indianapolis, Ind.

cific Coast, etc. It would be physically impossible, almost, for the manufacturer to advertise the price of his car at all points.

It is up to the individual dealers and local association to ascertain rates to their cities and advise with each other in a general way, so the dealers may get their prices on a more uniform basis.

There are two sizes of cars in the line I am handling. The freight on automobiles is governed by the length of the car in which they are shipped rather than by the weight. I can get two automobiles of one size and one of another. I can get three of the smaller size, but not three of the larger size, unless they are shipped in a car of extra length. We charge on the average freight per car.

We have added all our other costs and arbitrarily charge \$10 per car and we have found it costs that much to handle every car that comes into and goes out of our station. We add these costs to the freight, which is \$20 per car. We charge \$30 over and above the manufacturer's list price on the smaller cars and \$35 on the larger cars. We carry a line in our advertising to this effect: "We deliver to you complete, factory equipped." That is the term we use.

Our contracts now read: "Our price delivered to you," and this works successfully.

We have taken this matter up in our local association and have almost eliminated the practice of selling cars delivered to the consumer at the factory price. If this question comes up in any local association, I would suggest getting together on the basis and if you will arrange to take care of the freight and handling charges in the way we have you will experience little if any trouble.

Advertise the Truth About Prices.

Mr. Auble explained the resolution was presented for the purpose of inducing advertisers to tell the truth. He referred to the old days when cars were advertised without lamps, mud guards and



A. J. Peebles, Columbus, Ohio.

without anything except a part of the reputation the car would have some day. His idea is to get the actual price of the car before consumers. He suggested that the delivered price at destination be advertised locally.

J. C. Thorpe stated they advertised both the delivered and the factory price, the Buick 45 model at \$980 f. o. b. Flint, Mich., or \$1,000 delivered to the customer at Urbana. The freight amounts to \$20.22, and he absorbs the 22 cents. "We have a definite contract that leaves no chance for misunderstanding," he said.

List Prices and Discounts.

E. T. Jones remarked that some manufacturers never sold a car at list price. He cited an instance in 1909 when a car price at \$2,750 was put on the market. The sales manager suggested that the price be raised to \$3,200 and everybody be given 20 percent off.

Mr. Beedee suggested that it might be well for all dealers who had definite instances of cars being handled by curbstone dealers and sold direct to report same to the secretary and file complaint with the manufacturers with a view to making them see it is to their interest to change their tactics.

The Cause of Failure.

A. Auble, Jr.—We should derive some consolation from the fact that every car manufacturer that has been doing business wrong has been refinanced or reorganized. Their sales organization and sales policy have been the cause of their going to the wall. It does not seem to make any difference to them from whom they get their money. But they are wrong, their selling organization is wrong, and those companies do not last very long. Take any company that has maintained a good sales organization and it does not take long to count them today. They are getting orders. An organization like this will make them wake up and get a little wisdom.

Mr. Taylor stated there was not a curbstone dealer in Rockford today.

Practical Handling of the "Used Car" Problem.

Mr. Avery—If the other local associations can get together and do as many things as they are doing, they can do this: They can stop taking in old cars simply by putting a rider in all new contracts. We might say this: "We only take a \$100 interest in your old car." You will be surprised how it works out, for we have tried it. Maybe the other associations could adopt the same rider we use. This thing can be done because we have done it.

Mr. Taylor suggested that the men who wanted to trade in cars be sent to the fellows who like to trade and who are cutting prices in that way. Continuing, Mr. Avery said:

We have a man who passes on the used cars taken in and they are then sent to the used car market. Every man who wants to trade in a used car goes to him and we get the market price for our used cars. This plan has saved the dealers of our town \$50,000 this year.

Constitution and By-Laws.

The rules were suspended for the purpose of amending the constitution and by-laws. During the consideration of the question before the convention a recess was taken for lunch.

THURSDAY AFTERNOON.

On reconvening Secretary McCall read a resolution from the National Association of Automobile Accessory Jobbers. A delegation from that association was then received. On invitation Wm. M. Webster of the visiting delegation outlined very briefly the history and purpose of the organization he had the honor to represent.

The association now has 200 active and associate members, the jobbers being the active members and the manufacturers the associate members, the latter including only such manufacturers as had established a definite method of doing business. Continuing, he said:

The strongest plank in the organization is the one in which is shown the object of the organization is to educate and build up the local dealers and garages and make them the sole distributors of automobile supplies and discourage the sales of such goods through illegitimate channels.

Dealers' Prices to Consumers.

We realize we have a big job on our hands. We realize there are certain large organizations in the country—Butler Bros., Simmons Hardware Company, and others—who have handled automobile supplies in the past. These people consider any man with a sign over his door as legitimate prey. They send their catalogs broadcast. They send them to the butcher, because he buys knives; to the druggist, because he handles razors; to the sporting goods man, because he handles revolvers; to the hardware man as a matter of course, and they do not overlook the dry-goods man.

Our theory is that in the smaller towns, say from 8,000 to 10,000 people, the majority of cars are owned and driven by the local merchants, the very people these concerns regard as customers and who receive dealers' prices.

Building Up the Dealer.

The future of this business depends on building up the dealers throughout the country. We want to try to keep the doors

of the garages in the smaller cities open all winter. In the smaller cities the garage men have a very satisfactory business during the summer. When fall comes, about the first of November, he turns in and sits around the stoves until the first of May.

We want to help the garage men get in the cars during the fall and winter. When spring comes the garage man who has kept his shop open all winter will have earned enough to pay his overhead and living and have capital left to buy supplies for the coming season.

We are thoroughly in accord with organizing to do business on an ethical basis and that is our policy.

In the matter of freight classifications we have appointed a committee to take this question up with the railroads to see that we get the lowest possible rate on supplies. To my way of thinking that is very important. The committee is now at work.

Handling Back Orders.

Mr. Webster was asked about shipping "back orders" direct from the factory, and replied:

On big orders it is a matter that is left to the jobber and the individual dealer. When we put an item on "back order" it is because our stock run out faster than we expected. We then write the customer a card saying we will forward the item as soon as possible, or that the item may be reordered with the next order that is sent us.

Personally I would not ask a factory to prepay a back order to me because I do not believe they should be put to that test. I do not believe we should prepay back orders to our customers. It seems that at some time later on we can handle it. You may find a back order on every order you send in. We may have to back order two out of twenty times. That condition cannot be overcome.

No dealer or garage man will continue to buy from houses whose practice is to back order the orders received. That is a matter that should be left between the jobber and the dealer and on the other hand between the manufacturer and the jobber.

Regarding the manufacturers' division I want to say that one of the stipulations of membership is that the manufacturer must have established a resale schedule of prices to the jobber and the dealer.

Mr. Halbert asked about freight charges from the factory on shipments made direct to the jobbers' customers. In reply it was said that when the customer is in a hurry he wants shipments made direct to save time, and further said:

When a jobbing house is making a business of direct shipments, I do not think they can be called jobbers. Our definition is that a "jobber must carry a sufficient stock to do a legitimate jobbing business." None of you will continue to patronize the concerns that do not give service.

It was decided that a committee of three should be appointed to confer with the Accessory Jobbers at the next meeting to be held in May.

Renaming the National.

L. C. Steers reported for the conference committee appointed to select a name for the national organization. The name reported, THE NATIONAL RETAIL AUTOMOBILE TRADE ASSOCIATION, was adopted.

Some of the many talks on the subject

of the name were illuminative and a few are given in substance:

Halbert Still a Garage Man.

H. E. Halbert—I wish to explain, for the benefit of our members, both local and national, that the committee considered the six different names suggested. The vote finally stood three to two for the name we have suggested. I believe in harmony in our ranks and I am with the majority, but I want every man here that feels proud of the name garage to understand that Halbert still stands for the name GARAGE, and will go down to the last day as a garage man. [Applause.]

"What's in a Name."

R. C. McPherson—This association was started as a garage association. I appreciate the fact that there are a great many garages that handle cars. Since we have changed the name to Trade Association we do not make it garage association, we make it something else.

The point, as I see it, is that it is a matter of affiliation of the manufacturer, dealer, and garage. We have all we can take care of in the garage business. The manufacturer and dealer should do the same. We should co-operate with them. We have had a great deal of criticism in the garage business—all kinds of criticism—but fail to see how a change of name is going to make any difference.

Branches of the Garage Business.

R. C. Beedee—I will answer the gentleman in this way: You boys of the city started your organization and we boys of the country have stepped into your shoes. In this city you are strongly organized in a garage way and in a dealers' way. In the country our business is interwoven. My business has three branches: selling cars at retail, selling accessories, and garaging. Your membership now and in the future is to be from the country. You of the city are going to be influenced by the country. I believe you will grant that. I stand for cleaning up the garage business. If the name garage is a handicap we should not handicap ourselves with a name when we can get results without it.

National Organization a Big Thing.

E. T. Jones—We have sent our secretary all through the State of Ohio and the report comes back: "If you are going to use the name garage we are not coming in." We want to make this organization a big national organization. We do not want to be governed by local conditions anywhere. This is a great big proposition. So long as we are not going to interfere with the names of the organizations in the different states I do not see how it will hurt the Chicago boys. I am with the majority.

Garage? All That Goes Into the Upkeep of a Car.

J. A. Cameron—This matter simmers down to a local condition. This organization was founded by the garage owners, by the garage owners of the city of Chicago. I cannot understand why we should think of cutting out the name GARAGE.

What constitutes a garage? Everything that goes into the upkeep of an automobile. The Chicago Garage Owners' Association, with the assistance of GARAGE EFFICIENCY, founded this organization as it stands today.

I appreciate everything that has been said, but you are wiping out the original foundation of this association and I do not approve of it.

C. L. Turner—When I saw that Chicago had a garage owners' association it appealed to me at once. Nothing seemed to hit the spot so well as that did with me. I took the matter up with our boys. We



Here are shown the men who planned and brought into being the National Automobile Trade Association at the banquet in the Congress Hotel, which followed the launching of the organization.

are proud of our name. We have a place in the city directory and we are known that way. I would hate to lose our identity.

W. B. Taylor.—I did not intend to mix in this change of name at all. I believe in the Chicago Garage Owners' Association; I believe in the Garage Owners' Association of Illinois. I do not think these names should be changed. Our local association did not put in the name "Garage." We include the garage man and the dealer and put them all in under one name. If we want to get these allied industries in we should make a name that will cover them all but that will not make any difference at all between the garage man, the dealer and the accessory man. We should have them all in one big association. I am a garage man and I do not sell cars.

That closed the discussion.

The remainder of the constitution and by-laws was read section by section and adopted with certain changes.

The report of the Executive board embracing the contract with R. A. Wilson, of Chicago, was read and approved.

Officers and directors were elected as given.

Insurance Plan Endorsed.

F. A. Bean offered a resolution endorsing the plan of insurance handled by M. J. Dorsey & Co., and this was adopted unanimously.

E. T. Jones suggested that the organization adopt a slogan and that it be used on all stationery, which also should show that the user is a member of the national body.

A Protest.

H. E. Halbert—I wish to suggest that this association go on record protesting against a publishing concern located in the city of Chicago and publishing a paper called the American Garage Magazine. They are soliciting the membership of garage owners throughout the United States upon payment of \$2 per annum. That is the price of the garage owners' association and the subscription to the magazine.

Steers—I move that the secretary be instructed to notify all our members and ask

them to write personal letters to the concern that are advertising in that magazine and ask them why they are advertising in it and enlighten them that they are in the wrong paper.

The motion prevailed.

Place of Next Meeting.

H. E. Halbert—As a member of the Chicago Garage Owners' Association, of the Garage Owners' Association of Illinois, and

of the National organization, I suggest that the next meeting be held in some city outside of Illinois.

Harry Single, of Cincinnati—As a representative of THE city of Ohio, I ask you to hold your next convention at Hotel Gibson, Cincinnati, Ohio.

This invitation was accepted subject to the final decision of the Board of Directors. The convention then adjourned.

Resolutions (Cont.)

(Continued from page 22.)

ties will be established, thereby reducing rates to a fair basis, and securing our fire insurance proportionate to the hazards of this class of risks.

PROTESTING DIRECT SALES OF CARS AT CUT PRICES.

Whereas, repeated protests have been submitted by various members of the Garage Owners' Association of Illinois respecting the policy of certain automobile factories selling their product to individuals who are not established in the automobile business at the regular trade discounts, and

Whereas, this practice has the effect of disorganizing the retail automobile business, not only in the districts from which the protests have come but throughout the country, and

Whereas, it is one of the specific purposes of this association to bring about harmony and the proper relations between the retail automobile dealer and the automobile factories, therefore

Be it resolved, that this association, in regular convention assembled in Chicago, Illinois, January 25 and 26, 1916, issue a formal note of protest against the practice and policy above described, with a strong recommendation that all factories conclude their negotiations with prospects in localities where they do not have established representation through legitimate dealers or established garagemen, in order that the service requirements of the owners shall be properly met, and further that in all cases sales shall be made at advertised list prices in accordance with legitimate merchandising methods, and

Be it further resolved, that a copy of this resolution be mailed to the National Automobile Chamber of Commerce, New York City, with the request that it be brought to the attention of the members of that organization.

PAYING FREIGHT ON BACK ORDERS.

Whereas, it has come to the attention of the Garage Owners' Association of Illinois that a resolution was passed and spread upon the minutes of the convention of the National Association of Automobile Accessory Jobbers recommending that in all cases where orders are submitted by dealers for supplies or accessories for resale, and it becomes necessary for the jobber to back order any or all items of the order, that the dealer shall be requested to pay the full transportation charges incurred by such back order, and

Whereas, it is one of the specific purposes of this association to promote the business interests of its membership, and

Whereas, the resolution above described appears to be opposed to the spirit of fair dealing, therefore

Be it resolved, that this association, in regular convention assembled in Chicago, Illinois, January 25 and 26, 1916, issue a formal note of protest against the policy outlined in the above described resolution, and

Be it further resolved, that a copy of this resolution be submitted to the Secretary of the National Association of Automobile Accessory Jobbers, with a plea for proper consideration.

At the Michigan Convention Things Were Done Right

When it comes to making motor cars, the world takes off its hat to Michigan, for that state is expressing itself in terms of good cars to the entire civilized world. In Michigan, also, can be found another expression of human progress in the work the garage owners and car dealers of the state have accomplished and undertaken.

It is the privilege of garage owners to keep in touch with the salient features of this work of the men of Michigan that has been completed and also that which is underway.

Where Men Are Recognized.

The first session of the Garage Owners' Association of Michigan was called to order at 2:30 p. m. by Secretary L. C. Steers, the members assembling in the convention hall of Hotel Statler.

After the reading and approval of the minutes of the last preceding meeting a request for attendance was proffered by Mr. Powell, of the Standard Repair Shop, of Bay City, Mich. Mr. Powell is a negro.

Robert Bland, of Evanston, Ill., asked for the floor and said:

"If this man is all right, if he is doing business on the square, if he is not holding up the public, his color should not debar him from this convention."

Permission to attend was given and it was suggested that if the visitor desired to put in an application for membership that it be considered on the same basis as any other application, decision would be made on the value of the man, not be governed by the color of the applicant.

A Put Up Job.

Robert Bland started a speech and before he had proceeded very far devised a pretext to induce Secretary L. C. Steers to leave the room. During Mr. Steer's absence he hurled this broadside:

As president of the Associated Garages of America I want to tell you right now there is not a secretary in the United States that is the equal of this man Steers. There is not a soul in the movement that has done as much as this man. God love him! I hope he will be with us for the next fifty years.

A little while ago you tendered Mr. Steers a rising vote of thanks. Now, fellows, man to man, do you think you have done your duty? I don't. Give him something to look at, something to recall your ideas of him in the future. Steers is making history. He has made it. A little over four thousand pieces of mail were sent out from his office and what does it cost you? Nothing.

I am simply a voice at your convention but I have a five spot for a loving cup for this fellow and I am going to ask Mr. Bean to move that a committee be appointed to look after this matter.

The motion was made and carried.

A committee was appointed to round up members from the visitors in attendance at the convention.

The Secretary's Showing.

The register of the Garage Owners' Association of Michigan shows 128 names. If we include the 21 members at Battle Creek, whose names have not yet been reported, we have a total membership of 149.

Total receipts from May 22 to January 15, \$667.50 from initiation fees and dues, which sum had been transmitted to the treasurer.

Total expenditures for the period named amounted to \$890.79, total disbursements \$637.74, leaving an unpaid balance of \$253.05.

Financial Statement.

The treasurer's report was submitted and accepted as read. It showed:
Total receipts, not including a loan of \$85 from the purchasing fund...\$667.50
Total amount paid out..... 637.74

Balance\$ 29.76

The report of the auditing committee showed the books to be correct and that the association was indebted to the secretary in the sum of \$253.05.

Grievance Committee Report.

G. R. Vanderwee's report on behalf of the Grievance Committee was accepted as a progress report. It follows:

We have not had anything to do, but not because there was nothing to do. In my personal experience I find there is plenty to do only we have had no call to do it.

I have had three or four cases where garage men have been grossly abused, called thieves and robbers to their faces, and with nothing at all to fight back with. We submit because we have to.

If the members would write full particulars of each case to the chairman of the grievance committee, a reply could be devised, and that reply, endorsed by the association, could be sent to the individual at fault. I believe the grievance committee is the proper channel through which to get at these fellows.

Publicity.

A report on behalf of the Publicity Committee, of which Clyde E. Swain is chairman, was submitted:

Like all new organizations we were unknown when we started. Our organization was perfected last May, and at that meeting there was one newspaper representative, but we were well taken care of by GARAGE EFFICIENCY and Motor World. At our Grand Rapids meeting all the papers gave us nice write-ups. Our third meeting is now in progress. Newspapers were notified and GARAGE EFFICIENCY and Motor World had representatives with us. Local newspapers have been requested to have men in attendance and we are getting some publicity in that way. A year from now I

believe we will have a larger and better report to make.

A Forecast of Entertainment.

On behalf of the entertainment committee, F. E. Price stated that it had been decided to mix a little fun with the after deliberations of the convention. To Mr. Price and his associates, largely to Mr. Price, the men of Michigan attribute the very generous time enjoyed by all at the banquet tendered delegates and visitors the evening of January 21.

F. A. Bean, on behalf of the Committee on Insurance and Banking, submitted a report which is given in full elsewhere in this issue. This report was followed by a discussion of the ideas brought out in Mr. Bean's report by R. A. Wilson, of Chicago. Mr. Wilson's views and suggestions on insurance are given in a special article in this issue of GARAGE EFFICIENCY.

The three recommendations made in Mr. Bean's report were adopted.

Organization and Co-operation.

E. T. Jones, of Akron, Ohio, talked on the Necessity for Organization and Co-operation. His address in full is given:

When we think of organization we judge it, as a rule, not by the noise it makes, for the poorest engines usually creak the loudest, but measure its merit by the success it attains.

Organization is applied to varied things but its main object, no matter where applied, is the centralizing of effort.

It is only another name for co-operation. That organization is most perfect which is least noticeable.

We have only to turn in the direction of the mammoth industries of our country to see what organization has accomplished.

The success of these great institutions is not the result of effort of a small percentage of the individuals interested, but depends entirely upon the ability to so combine the entire energy of all persons, from the office boy to the president of the Board of Directors into harmonious action without destroying individual ambition.

When we recall the wonder story of the automobile industry's development it should be an inspiration to us to measure up to the standard which future success demands.

This can be possible only through organization and by this I mean co-operation, honesty and fair dealing.

We must brush from our midst the unscrupulous and careless—otherwise there can be no progress—only retrogression and decay.

During the past year passenger motor-cars with a retail value of more than \$500,000,000 were sold and to this vast sum we can add the value of trucks and commercial vehicles worth over \$125,000,000 more. Think what this means.

Just this:—that the automobile industry now ranks in the value of its output with the manufacture of boots and shoes, woolen and cotton goods. In the short period of two decades the young giant has grown to

the full stature of the oldest established American industries.

Those figures are a clarion call to organize.

It is the only way in which we can keep abreast of the pace which this greatest of all American industries is setting.

We wonder at the story of Aladdin's lamp.

But what was that compared to the gas engine?

No romance in the world's history is comparable to that of the great motor trade.

You and I can congratulate ourselves that we are a part of this great industry.

But can we all say that we are an IMPORTANT part?

What are we doing to fit ourselves for the Marathon that is to follow in this great race?

Success vs. Disaster.

If it is to be each individual for himself, disaster is sure to be the only goal that most of us will reach.

But if we would pass the goal of success we must organize—one for all and all for one.

This can be made possible only through organization and the elimination of unfair dealing and selfishness.

We hear much these days of preparedness against the terrible war that is devastating Europe.

Next to preparing to protect humanity, our homes and families, in this country, is preparedness against industrial disaster—a fate certain to overtake any gigantic undertaking that lacks the keystone of success, organization.

We need an organization which will help us to solve our business problems—one which promises service to our patrons and places us upon a solid foundation to meet the storms and tempests in our future path.

In building our organization we must consider the power of even the smallest link which forms the chain. Small though the link may be it must be moulded of the same steel of interest that the largest link boasts.

To succeed there must be nothing connected with our organization which will develop conflict between members.

It must not be like the two churches to which little Bobby belonged. "What are you crying for, Bobby?" his mother asked when he came in the house sobbing and with great tears rolling down his cheeks.

"Boo hoo!" said Bobby, "I've been going to the Methodist and Presbyterian Sunday Schools for two months, and now they're going to have their Christmas tree on the same night!"

We must learn that what is beneficial to one person interested in our business is usually certain to benefit all.

I am viewing our business with considerable optimism but not the kind of optimism that Ambassador Brand Whitlock told of recently.

A Toledo boy once asked what an optimist was and he was informed that an optimist is a man who tells other people not to worry when everything is coming his way.

That kind of an optimism doesn't appeal to me. For while it may be coming your way and my way today we may not be so fortunate tomorrow, especially if we permit unscrupulous dealers to inject undesirable tricks into the business.

Perfect Organization.

My idea of perfect organization is one that will enable the vision of men to penetrate the barriers raised by competition and teach them that after all we are brothers striving for the same goal—success.

That goal is large enough to accommodate the passing of all at the same time, if necessary. Perfectly organized the success of one will mean the success of all and our patrons who make this possible will in the end be the beneficiaries.

Let us aim to make our organization one big partnership so as to afford the largest number of men the greatest opportunity for development. It will widen the horizon of our lives and make us bigger and better men. Let us strive to be honest with ourselves and it is almost certain that we will thereby be honest with others. It is not too late to apply the Golden Rule in business.

Perfecting an organization does not mean the staging, periodically, of banquets and get-together meetings.

These functions, of course, help, but something more is required if we are to have the kind of organization that is to serve our purpose.

Personal Interest Essential.

What we need, most of all is interest—the personal interest of every person connected with our business.

We cannot expect to meet once or twice each year, elect a few officers, adopt a constitution and by-laws, listen to a few speeches, eat a good dinner and then return to our homes feeling that for the rest of the year the organization will take care of itself.

True, much of the work will fall on the shoulders of the officers but if we are to have an organization that means something, not one of us must permit a day to pass that we do not strive to think of something, to suggest something, that will develop a higher standard of efficiency in our business and put it upon a more solid basis.

Each member must feel that his part in the organization is just as important as that of the highest official. Whether we come from San Francisco, Akron, New York or Cincinnati, grant that our endeavor will be to promote the best interests of the entire organization. In this way alone can we succeed.

Profiting by Mistakes.

Some of us have made and may continue to make mistakes. It isn't a disgrace to make mistakes if you don't permit them to become a habit.

That is one of the things organization will do for us. We can counsel together, profit by the mistakes we have made and seek to prevent recurrence.

If there is anything in the past of which we are ashamed we will try and forget it—if, however, we can point with pride to our achievements let us mark them with a monument that others may profit by our success.

Herbert Kaufman has said "When every other ability fails you, try reliability." That is the kind of counsel that should be accepted.

To make our organization what it should be we must enroll as members every reliable garage owner and auto dealer in the country. We must keep hammering away at them until we convince all that co-operation is the thing that will put our business upon a higher plane.

In this we must be just as persistent as the auto salesman who sold a car to a prospect considered impossible by nearly everyone.

"You know that automobile agent who has been pestering me to death for the last six months," said the impossible prospect; "well, I finally got rid of him."

"How did you manage it?" a friend asked. "Easily enough. I bought the car!" he replied.

Nothing is impossible and we must have

just as much of the spirit of sticktoitiveness as that salesman had if we are going to build a great organization. We must work together, think together and succeed together.

Recognition.

On motion Mr. Jones and Ray Sherman were voted honorary membership in the Garage Owners' Association of Michigan.

Interinsurance Endorsed.

A resolution, signed by all members present, was read by Secretary Steers and formally endorsed. It follows:

Resolved, That the members of the Garage Owners Association of Michigan here assembled agree to give prior support to the perfection of an Interinsurance organization, whereby owners and operators of garage properties may secure their insurance at an equitable rate and at a cost we should rightfully pay.

The convention then took a recess until the following morning.

FRIDAY MORNING SESSION.

The chair first called on Ray Sherman, a part of whose talk is given:

There are five things requisite to the carrying on of a successful garage business. They are investigation, plan, operation, record and reward.

Before any work can be taken up the first thing we have to do is to investigate. After we investigate we find out what we wish to do, then we formulate a plan for effecting that end. After we operate then we compile our records and find the reward.

A man who is operating a garage and not making money should first investigate and find out why he is not getting the proper financial return, and then he is in a position to formulate a plan for increasing the business. As to the plan, that depends to a great extent upon the particular business, the locality and other things. At this season of the year the garage business and especially that of the repair shop, takes a slump. A great many shops find it a good plan to keep a stock of auto accessories to stimulate trade. Turner, of Peoria, Ill., found the "Winter Letter" a good business getter, as it makes a special appeal to owners to bring in their cars for repairs and general overhauling during the winter months when business is not so rushed.

Maybe you think that you have not as good a business as you think you should have. Get the outside view of your business and you will be able to improve that business.

Few people realize the very definite value to be obtained by simply thinking. It is human nature not to think. One of the largest factories in the United States, whose production has achieved one of the greatest successes in the industrial world, has posted throughout its factory in big red letters the word "THINK." If you will take a certain portion of each day and do nothing but think, you will find that the few moments that you devote to thinking will be the most valuable time that you spend. I know of one man who used to set aside the hour between four and five in the afternoon to be devoted to thinking. He was a factory manager and would go into his office at this time, after giving orders that he was not to be disturbed, and this hour between four and five was worth more to the factory that was paying his salary than all other hours that he put in—because he was thinking.

Devote less time to manual labor, and more time to evolving plans for the betterment of your business, and you will make

more and be worth more than you would be with a monkey wrench under a car. The manager of a business should not attempt to perform the duties of an office boy or file clerk.

As to plans for increasing business; several times in our publication we have slipped in a few remarks and suggestions along this line, and any time that we can write you a helpful letter on this subject we will be glad to do so. A good plan is to carry a note book with you and jot down new ideas and thus obtain a stock of ideas, and then—put the practical ones into execution.

The future of the garage business lies along the lines of better garages and better business; the stigma on the garages is the fault of the garage owners. One of the greatest missions of the association is to elevate the standard of the business. If each member will say "I am going to make my garage a worthy member of the association, and to that end investigate from the first what you have done, what you want to do, and how you are going to do it, and after that the only thing left to do—is to do it.

Securing Coöperation of Employees.

It was decided, on suggestion, that after the presentation of a subject, a general discussion would ensue with a view to bringing out other ideas and suggestions along the same line.

Robert Bland—The best plan for increasing business is to absolutely secure the co-operation of your employees. Men say day in and day out how hard it is to secure good help and how hard it is to keep good help. Adopt this plan which I have found works out very satisfactorily, and I believe that through this plan we have increased our business and the efficiency of our operations from fifty to one hundred per cent.

Twice a month we call our help together; we suspend operations in the garage and put a man on the phone to talk to the customers. We get all our employees in the office with a box of cigars and I take my master mechanic and put him in the chair. I am back with the rest of the employees, right in the midst of them.

A young man in my employ, driving an electric car, ran into a man on a motorcycle, and it looked for awhile as though I was going to be up against a damage suit. The fellow was skinned up considerably. It cost \$48 to repair the motorcycle and the doctor's bill was \$25. We were to have a meeting that evening. Our master mechanic who had charge of the men, suggested discharging the driver. He told me the details and I agreed with him, but suggested trying it out at the meeting that evening.

I found out from talking to the injured man that he was on the wrong side of the street and had cut our car off. He did not hold us responsible but the wheel belonged to a man for whom he was working and he had to stand for the repairs. He did not have the money to put up for the motorcycle. He signed a release and I took care of the motorcycle and the doctor bill.

At the meeting that night my master mechanic was absolutely determined to discharge this young driver as an object lesson to other drivers. I took the young man's part and after listening to his story, asked the opinion of every man at the meeting and all agreed that to discharge the driver would be a mistake as he never would have an accident of this kind again.

Then we take up the individual complaints of our customers and fully discuss the merits of them.

Get your employees together once or twice

a month and you will increase your efficiency. Have heart to heart talks with them. Show them that your success is their success. Don't tell them this and not demonstrate it, but give them an occasional increase. It pays to have the goodwill of your employees.

Coöperative Work.

The chair asked how many of the garage owners held meetings with their employees, and a canvass showed only two held regular meetings. Some held occasional meetings, but the majority held no meetings with employees.

Mr. Powell (Bay City)—We have what the boys call "Skull Drill" every Sunday morning. I talk with the boys regarding their work and the various complaints are discussed. We take all the practical motor magazines and the boys simply eat them up.

Mr. Beard (Port Huron)—All departments are requested to submit ideas on operation, and these are submitted to the employees for discussion, and any suggestion that is carried out that they recommend, they get full credit for, and other employees are encouraged to improve on that suggestion or make others.

Mr. Westbrook—We have a ladies' reception room where ladies can wait while their work is being done. All customers are requested to leave orders or instructions at the office, and we have a sign there to this effect, and in this way we have eliminated a great many complaints. Regarding the employees, I think, as Mr. Bland says, that one of the greatest assets to organization are these monthly meetings with the employees. Bring them together and make your interests their interests.

Mr. Walters (Detroit)—I find the garage business rather unsatisfactory but believe the association is going to help along so much that eventually I will like the business.

Mr. Petrie (Battle Creek)—Along the line of organized efficiency I wish to say that we do not displease our customers by allowing our employees to get into a car in their greasy overalls. The owner should create friendly feelings with his employees. You cannot go out and play ball with seven men, nor win a game with a "knocker." It takes co-operation.

When Conferences Can Be Held.

Mr. Dorsey asked for some light on the subject as to how these meetings can be held when some of the men work day and the balance night.

Mr. Bland—How do you take care of employees who are working both day and night? We generally hold our meetings between seven and eight o'clock at night and give our day men one hour's pay for coming to the meeting. Sometimes we alternate this. At times the meetings only take from thirty to forty minutes, depending upon the complaints of the customers. Start little discussions among the men; make your master mechanic the "goat" and he won't be the goat ten minutes, he'll unload and you will find the "leak" and when you find it plug it. Keep in close touch with your men because by patting them on the back a little you are going to get better results, and better results mean more money at the end of the year.

Getting the Men Together.

Mr. Westbrook asked if one man could handle both shifts when the men are working both day and night.

Mr. Bland—You must have two men but all reports for both shifts can go to one

manager. I insist that all telephone calls and the time that they were handled be recorded. This record is ready for the manager in the morning, showing just how each call was handled and the time that elapsed.

Mr. Swain (Detroit)—The various talks have been very inspiring. I have not been in the business very long, but am learning. I obtained a great deal of information from a speech that Mr. Bland made at Grand Rapids with reference to the proper handling of employees.

A rather heated argument ensued between Mr. Bland and Mr. Dorsey regarding just what can be defined as garage efficiency, the advisability of an owner being his own bookkeeper and to just what extent the personal element should be allowed to enter into the business, and whether or not it paid for the man owning the garage to be his own driver at times. Mr. Dorsey concluded the discussion by saying:

Garages vary so tremendously that conditions are altered. Mr. Bland's talk is all on the line of absolute pure efficiency to which there can be no objection. I keep my own books and on occasions drive my own cars. I try to keep in close, personal touch with my customers in a friendly, neighborly way, so that when anything goes wrong, my patrons for the most part merely say—"Well, Dorsey is a pretty good sort of a fellow, and he just can't help what those 'devils' do when his back is turned."

P. O'Brien, state senator and publisher of *Iron River-Stambaugh Reporter* was called on to tell how Michigan secured its lien law.

Getting a Lien Law.

I am honored in being invited to appear before you and in a few brief words explain the part I played in getting enacted into law the Garage Owners Lien Law. When I was elected to represent my district in the State Legislature I partially made up my mind that so far as I was concerned I would not make any effort to dig up any bills to be enacted into law, for it had been my observation that there were altogether too many bad and indifferent bills enacted into law, just because some so-called statesman wanted to get his name before the public.

A few weeks after the legislature had been in session I received a letter from Lindwall & Lindstrom, a couple of hustling owners in my home town, asking me to introduce a Garage Lien Bill, which was enclosed in the letter. I read the bill over carefully and at once decided that it was a meritorious bill and ought to be enacted into law. The following day I had it drafted into bill form and that afternoon introduced it. At the close of the session Representative Ashley of Detroit came to me and informed me that he had the same bill and had been asked to introduce it but he had procrastinated, and an upper peninsula man had the credit of getting away with the goods. The bill was referred to the Judiciary committee, which was made up of nine lawyers. There it rested for some time.

Not hearing anything from it I finally got after the committee, of which Mr. Flowers of Detroit was the chairman, and asked him what the committee was going to do with the bill. He informed me that the committee thought it was too drastic and he was not quite sure that the committee would do anything with it. As I said a moment ago I was never known to

be a piker, nor was I ever known to be a quitter. My Irish was now up and I made up my mind that I was not going to be thrown on my first bill. I asked Mr. Flowers to grant me a hearing, which he agreed to do. A few mornings after that I was called before the committee and informed that my bill was too drastic, and anyway that the garage owners did not need it, as they already had a remedy at law which they could invoke if they so desired. I had them point out to me wherein the bill was too drastic. They referred me to section three, which gave the garage owners the privilege of picking up an automobile wherever they might find it. The committee held that this section gave the garage man too much power and he might abuse it. I told them that the garage owners were as much entitled to protection as the carpenter, contractor, blacksmith, or any other artisan, and that if section 3 was too drastic, to cut it out, but to give us some protection, as we were as much entitled to it as any one else. The committee thought we could work under the old law, but I informed them that it was all right for lawyers but we wanted quicker action; that the garage owners of the state had thousands of dollars tied up and desired this protection. Mr. Flowers finally agreed to rewrite the bill, leaving out the objectionable features. This he did finally, but not before I had to appear before the committee several times. It was finally whipped into shape, passed the house and was sent over to the senate.

Previous to this Senator Hilsendegen, of Detroit, had presented the same bill in the senate, but when he learned that I had presented it in the house he did not push his bill but gave my bill substantial aid in the senate. Here I found five lawyers on the judiciary committee, with whom I had about the same trouble I had in the house. But I stuck and kept after the committee every opportunity I had. After considerable parleying with the chairman I succeeded in having the bill reported out, but in order to do so I had to stand for several amendments. It finally passed the senate and was returned to the house, where the amendments were accepted. The bill was then passed and was ready for the governor's signature.

The bill was sent to the governor for his signature, without any thought that it was to be slaughtered. As is the custom, the Legislature adjourned temporarily the 29th of April to allow the House and Senate clerks to write up their journals. Before the reconvening of the Legislature, which usually is attended by probably a dozen members, as there is no business to be done, except to open and finally adjourn, an error was discovered in the state highway appropriation bill, which if allowed to stand would leave the state highway department without any funds. The governor invited the members to return and correct the error, which they very kindly did. On our return we found that the governor had vetoed several bills, one of which was our garage lien bill. When asked what I wanted done with the bill, I emphatically replied that I wanted it passed over the veto. This was done in the house with 15 votes to spare and it was sent to the Senate, where it was also passed, with one vote to spare, which was pretty close sledding. Without desiring to throw any bouquets at myself or the work I did in getting this bill through the legislature, if I had not been a pretty good mixer with the boys over in the Senate I would not have been able to have passed this bill over the governor's veto, for the reason that a number of the senators voted in favor of the bill, in the first place, because I personally

solicited their support. But when it came to passing it over the governor's veto it was a horse of another color, but they finally voted for it because it was my bill and I was interested in getting it passed and enacted into law.

As I have previously stated, one of the chief objections to the bill was on account of the power it put into the hands of the garage owners throughout the state. Many of the legislature claimed that there were too many men in the business who did not know the first thing about repairing a car and in a great many instances left the car in worse condition than when it was brought into the garage. This is probably true, we are sorry to admit, but the same condition of affairs exists in every line of business. In the printing business the same conditions exist, but I am pleased to state that these conditions are rapidly being improved as our associations can get to this class of men. That is what the Garage Owners' Association must do if it would have the garage business as successful and efficient as any other line of business, and there is no reason why it should not be.

Last summer a garage owner from Milwaukee, Wis., happened to visit our town while on his way to the northern part of the peninsula and in a talk with him I was informed that Wisconsin also had a garage owners lien law. He said that he found the law to be a very good one, as he had been able to collect several accounts under its provisions that he had given up for lost. Every garage owner in Michigan ought to be a member of this association and reap the benefits, financial and otherwise, that he would be sure to get.

One of the things I said to the judiciary committee of the house at Lansing last winter when they objected to our bill being too drastic, was to cut out the drastic features and give us a lien law so that we might be able to try it out for the ensuing two years, and then if we found any defects in the bill we could undoubtedly remedy them at the next session of the legislature. Now it is up to the garage owners to make use of the law in a fair and honest manner, so that if we want any further legislation from the legislature we can be in position to ask for it and get it.

In concluding his address Mr. O'Brien said:

I was doing my own bookkeeping and allowed a bill to run to \$1,000. The customer was a Jew and always ready to take advantage of a thing of this sort. I went to his office and labored two hours to get a settlement. He wanted me to throw off \$300 from the bill. I did not want to sue him and allow myself to become known as such a poor business man, so I finally threw off the \$300. This one item could have been applied toward the salary of a bookkeeper who would have looked after and collected the bill. For the last few years I have had a man on my books and I find that I can make him self-supporting. I believe this suggestion could be used by Mr. Dorsey to good advantage as the small leaks and uncollected bills would go far toward paying the bookkeeper's salary.

A rising vote of thanks was given Mr. O'Brien. Mr. Vanderwee suggested that the vote of thanks be given with the understanding that more was really owing to him for his work on the lien law bill.

Regaining Possession of a Car.

Mrs. Gould, of Adrian, asked: "Where there is a bill against a party and the car has gone out of your possession, can the garage owner repossess himself of the car?"

Mr. O'Brien—That was the objection of the House Committee to the bill that the garagemen had made. You cannot go out on the streets and seize the car, but if the car comes back into your possession again, you can retain it, but otherwise you must resort to the old process by way of attachment.

Mr. Vanderwee—We at least today have got this much:—that if the rightful owner of the car gives you an order you have a lien on the car. I think that the bill as drawn protects both car owners and garagemen.

Insuring Protection.

Mr. Steers then produced a blank form to be used by members of the association containing a specified clause which gave them greater protection.

The chair appointed a nominating committee, composed of Messrs. Petrie, Swain, Johnson and Bean, to meet during the noon recess and select nominees for the following offices:

President, one year.
Third vice-president, three years.
Secretary, one year.
One director, five years.
Chairman of purchasing committee, one year.

AFTERNOON SESSION.

The convention called to order by the president at 3 p. m.

The Nominating Committee recommended the following:

President, L. F. Bertrau, Big Rapids.
Third vice-president, Allan Jackson, Saginaw.
Secretary, L. C. Steers, Detroit.
Treasurer, C. F. Strong, Coldwater.
One director, H. M. Geneke, Calumet.
Chairman of purchasing committee, L. C. Steers, Detroit.

Mr. Steers, in accepting the office of secretary, stated he did so on condition that the support of the individual members of the association be given him.

L. F. Bertrau, the newly elected president, then took the chair.

From the New President.

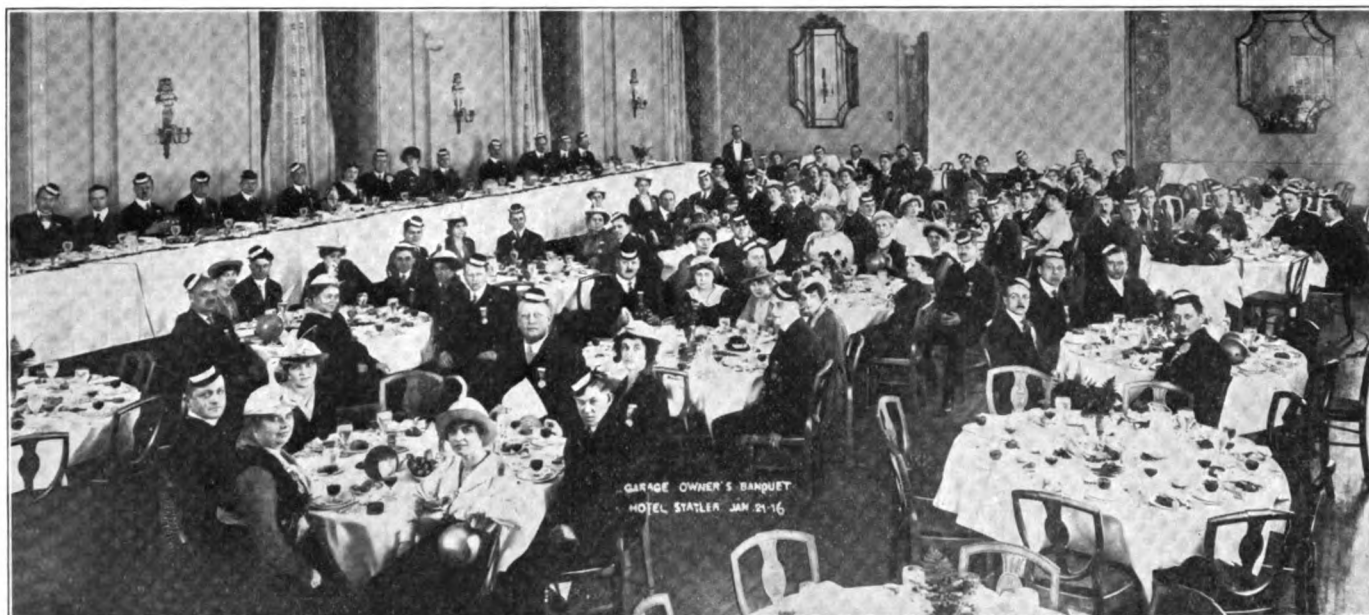
Mr. Bertrau—I did not want to accept this honor but your worthy secretary and other members have assured me that they would do all the work and that I would not have to do anything at all, so I thought it would be easy. I have an appointment right now at the Griswold Hotel, and if it is agreeable to you, I would like to turn this meeting over to Mr. Bland of Chicago. I will not be able to be with you any more at this time, but hope to be with you at the next meeting, which I hope will be at a different season of the year.

Urging Support for the Purchasing Department.

Mr. Bland then presided.

The Purchasing Committee submitted a report, which the Auditing Committee approved, and both reports were duly accepted.

L. S. Currier—I do not believe that all of the different members of the association appreciate the hard work that the chairman of the purchasing committee is put to, nor do they appreciate what has been done by each individual member of the committee. Not one-tenth of the business has gone through our purchasing department



Did they have a good time at Detroit? Take a look. Do these garage owners and their wives appear down-hearted?

that should have gone through it. In accepting Mr. Steers as secretary each member of the association has pledged his individual support to the committee. This means support not as a body but as an individual and they should all boost it and carry it along. Within the last year there has been less than \$8,000 gone through the purchasing department, and yet I expect that there are many individuals here who have used this entire amount in their particular business, and if they would give us their support it would be from \$70,000 to \$80,000.

Let us get together and benefit ourselves and the association. Start the orders coming; save the expense of having a man come around to see you, save the time that it takes to call up on the 'phone, build up our purchasing department, support this committee, and we will all receive the savings which are pretty nice to put down in the bank as your own.

I want every man to pledge himself to the support of the secretary and the purchasing committee.

From the National Organizer.

E. J. McQuirk—I am thankful to be present here today. The Michigan Association can point more directly to the benefits that it has received than any other association today. In Illinois we have not received the benefits that we should have, but in two years' time we have done considerable in this state.

One of the first states to be organized was New York which had a large membership but owing to some difficulties has had a little set back, but I believe that a healthy organization will eventually grow out of it. Ohio is also well organized having some 200 to 250 members at this time and is going ahead very rapidly. In Des Moines, Iowa, we have an organization of 808 members.

A movement is now on foot to form two organizations in California, one in upper California and one in Lower California. San Francisco has a thriving organization. The members pay \$5 a month dues and are on the third year of their existence.

Organizing is hard work and the members do not realize the sacrifices made by the chairmen in this organization work. We believe that about a year from now we will have a large increase in membership throughout the country. The dealers and

the garage men realize that they need it. A great many mistakes are made in effecting an organization. Price maintenance is not a good foundation and has proven a failure in many instances.

The organization is trying to induce the manufacturers or refiners of lubricating oils to label each and every pail. This is something that they are going to object to doing, but by the labels you will know when buying a barrel of oil just what it contains and what sort of oil you are giving your customers. We have a right to know as garage owners the specifications of every barrel of oil coming into our garages.

I have found out also than another thing is your sponges, and that is a subject that the Association is going to take up and go into thoroughly because you are being robbed on your sponges. We have not gone into this thoroughly but intend doing so within the next year.

We have got to educate the public as to just what the association is and its purpose, and induce them to patronize the garages that are members of the association.

A resolution was then introduced and carried, providing that when a member of the association shall cease to be engaged in the garage business, his membership in the association shall automatically cease. This is the case with reference to the retiring president, Glenn L. Orr, of Detroit, and he was thereupon elected an honorary member of the association.

The convention then adjourned.

TRI-CITY NOTES.

DAVENPORT, IOWA, Feb. 11.—The regular monthly meeting of the Tri-City Automobile Trades Association was held the evening of February 8 at the Manufacturer's Hotel, Moline. Thirty live wires attended. A number of new members were received. Reports were heard from delegates to the State Convention of the Illinois Garage Owners' Association, and the National Retail Automobile Trade Association, which was formed in

Chicago the same week.

Considerable interest was displayed in the arrangement for the coming Tri-City Automobile Show, March 8 to 11, inclusive. Every foot of available space on the main floor of the Coliseum will be taken by exhibitors and more room could be used advantageously, if it could be secured.

In addition to the discussion of trade conditions and what could be done to better same, the topic of interest and importance to every automobile owner and driver in the three cities and surrounding country was taken up—this being the interpretation and enforcement of the dimmer ordinance in each of the three cities, which are so closely connected to each other.

A committee from the association was appointed to confer with the Mayor and City Attorney of each of the three cities and avoiding the possibility of embarrassment of drivers going from one city to another by reason of conflicting ordinances or a misinterpretation by the police department.

It was also suggested that a school of instruction for two or three evenings be held in each city, assembling the police, city officers and the dealers together in a demonstration, testing out and approving of such devices as will meet the requirements of the uniform law and so that they can properly instruct owners what is necessary to comply with the ordinances. Provision has also been made that all horse drawn vehicles shall carry lights that can be seen from both front and rear at the left side of the rig. There will be an election of officers at the next meeting, March 14.

The advisability of a paid secretary is being considered. A dealer cannot afford to give from his business the required time.

Garage Owners of Illinois In a Stirring Convention

*And ever afterward they were friends,
lived happily and were prosperous.*

Let's get this happy conclusion up in front where it belongs.

The Garage Owners and car dealers of Illinois met in a strenuous two-day session at the Congress Hotel, January 25 and 26. There was a lot of business to transact; there were some old scores to straighten out, and through it all the boys of Illinois stuck together, worked together, and came through the trying times much closer together than they were when the first session was called to order by President W. B. Taylor, of Rockford, Ill.

The Opening Session.

President Taylor invited Robert Bland, president of the Associated Garages of America, and E. H. Halbert, president of the Garage Owners' Association of Chicago, to posts of honor with him near the president's chair. J. C. Thorpe, of Urbana, Ill., served as secretary, assisted by Miss Zorn, of the Chicago office.

After roll call, President Taylor stated that the Tri-City Automobile Trade Association had affiliated with the Illinois organization, paying fees and dues, but had not been admitted to membership. A motion was made calling for the admission of the Tri-City organization. This was amended by Robert Bland to extend all privileges of membership and all rights in the convention to all whose applications and fees were in the hands of the secretary. The motion was adopted.

Following the reading and adoption of the minutes of the preceding meeting permission was given to pay dues, but all present reported to have paid up in full.

Address by President Taylor.

President Taylor then read his annual address.

I little thought when I came in to the annual meeting held in January, 1915, at the Lexington hotel, that I would be selected to be your presiding officer for the year 1915, and when I was approached by the nominating committee and asked if I would serve, I told them no; that in my judgment there were many members in our association who were much better fitted to fill this office than I. I also told them that from past experiences in other associations I knew something of the duties devolving on such an officer, and did not see how I could afford to give the time and spend the money that I knew I would be called on to do, should I be elected, but they would not listen to my refusal, stating that it seemed to be the judgment of the committee that I should make the sacrifice, and they would stand behind me and give me their hearty support in trying to solve the difficult problems that come up in such an organization as ours, especially in its formative period. I wish at this time to say to you that they have stood by me loyally in all the various difficult matters that we have had come up at different times in the

past year. I will now try to tell you, in a few words, some of the things we have tried to do during the year.

You will remember that our annual report of last year showed that we had \$1.51 in our treasurer's hands, and that we were owing Mr. McGuirk his year's salary, amounting to \$1,200. Well, what are we to do? No money on hand and this indebtedness. After thinking the matter over, I called a joint meeting of our board of directors, and purchasing committee, and I added some new members to the purchasing committee, and also to the lien law committee, who met with us at that time. We had a very good attendance, and were in session nearly all day, devising ways and means to carry out our plans for the future. At this meeting Mr. McGuirk, our

secretary, of his own free will offered to cancel his account of \$1,200 which we owed him, and we struck this indebtedness off from our books at that time. Our directors then entered into an agreement with him to carry on the office, and to assist the purchasing committee in their plans to get some contracts for oils, greases, auto soap, and some other supplies; he to have a salary of \$150 a month. We, at that time, figured that if our members would buy supplies through the secretary's office, we could easily pay this amount and the other office expenses. This could have been done if our members had taken the advantage of the saving they could have made by doing so, but for some reason they were very slow in adopting our ideas; consequently we found that we were not keeping up with our expenses, although we were making an increased amount each month until cold weather, when our sales naturally decreased.

You will learn from our secretary's report that our gross receipts from sales made through the secretary's office amounted to \$6,000, showing a gross profit of over \$1,000. This would seem to me as a very gratifying result, considering we have only had this plan in operation for nine months, and less than half of our members buying through the office. Of course you realize that we are not doing this for profit, but our main object is to save our members money on their purchases. This we have accomplished, because if you were to buy a barrel of cylinder oil today from our office, you would only pay us from 19½c per gallon to 23c, but should you buy the same quality from an oil salesman you have to pay from 28 to 32 cents, or more, at the present market price, so you can readily see that you can, or have been, saving about \$4 per barrel, and on my last barrel of soap I made a saving of \$17.07 from the last quotation made to me last week.

In reference to the lien law that we failed to get, I, of course, felt just as bad about our failure as anyone could, but we are not going to give up. We organized the committee at our February meeting, and commenced to solicit funds to carry on the work, and I thank each and all of you who gave us your time and money to promote this good. You will hear more about this from our legislative committee.

In regard to my own experiences and work, I can say to you that it has been a very busy year for myself. One of my first visits was to Woodford county, where we had a very pleasant and, I hope, profitable meeting. I spoke to them on the pressing needs of an overhead cost system in garage accounting. My next trip was to Detroit, when they organized the Michigan State Association. I have made two trips to Des Moines to talk to the Iowa State Association, and the last time I was there I stayed over one day and talked to the Des Moines Auto Trade Association. This month, myself and three of our local members went to a neighboring city and helped to organize a local association there, and they now have eighteen or more enthusiastic members. During the year I have traveled over 4,000 miles on organization or association work, and have made many very pleasant acquaintances. I have written over 300 letters, and my office secretary tells me that I have spent over \$250



W. W. Ingram, Rutland, Ill., President Garage Owners' Association of Illinois.

A MESSAGE.

All of the new officers of our state organization are practical garage and automobile men. It is certainly our desire to push the Illinois Association to the position it justly is entitled to occupy: The best organized and most efficient association in the United States. We all realize this accomplishment calls for work, but I know if every one will stick their shoulders to the wheel it can be done.

We must secure legislation that will benefit the garage owner.

We must bring sufficient pressure to bear on car manufacturers to eliminate the curbstone dealers.

We must bring into our fold every garage and automobile man in the state.

We must establish the association on a firm financial basis, and that can be done only by increased membership.

Every member should use the products of the Association Products Company in so far as practical and also pay more attention to the reading of every word published in GARAGE EFFICIENCY.

W. W. INGRAM,

President Garage Owners' Association of Illinois.

Rutland, Ill., Feb. 7.

besides the loss caused by my absence. She tells me I have been away from the office over forty full days on association work.

In closing this report I can only say that I have earnestly tried to carry on the work, and keep the organization on the same high level in which I found it when our worthy past president, Mr. Robert Bland, gave the gavel to me last January.

Report by the Secretary.

J. C. Thorpe, of Urbana, Ill., acting secretary, submitted a report covering the activities of the organization from the meeting at Peoria, Ill., to date. He suggested handling the coming year's business on a budget basis, estimating the financial needs of the organization and adopting measures to produce the funds required to place the association on a sound financial basis. He submitted a tentative budget for consideration. This included allowances for the fixed expenses of the organization, for directors' meetings, for aid in organizing city, district or county associations, covering the full activities of the organization. In support of this method of conducting the affairs of the association he said:

This, of course, is a cheap way of taking care of the affairs of the organization. If we built carefully for some time in the state of Illinois we should be able to employ a live wire in the secretary's office to conduct the work.

He stated that the time had come when the organization had tangible things of value to sell to prospective members.

Something of Value to all.

We have something of value to sell. Has the trade organization earned anything for the car dealer by changing the dates of announcing new models from the middle of summer, the busy selling season, to the winter months? This change takes away a part of the burden of financing your enterprise.

A man down the state said he did not believe there was anything in a trade organization, and I told him the organization had made more money for him than anything he ever had done. He admitted that he had sat in his office and sent back checks covering deposits made by his customers on cars ordered because the factory would not take care of him.

Our organization has compelled recognition by the National Association of Jobbers & Manufacturers. We have eliminated to a very large degree the cut rate store and the mail order house; we have gained the formal recognition of the National Automobile Chamber of Commerce. We made a start toward securing a lien law. We learned enough in our one campaign to guarantee us against failure at the next session of the legislature.

What You Pay and What You Get.

Now, then, we are expecting to buy all the advantages of the association, to gain all these things by the investment of \$2.50 every six months, if we are individual members, or \$1.50 if we belong to a local.

We are not paying for the real things the association is delivering to the garage man and dealer.

Further along this line he said the organization had gained 45 members in the last three months and he thought one hundred new members during the year would be a very conservative estimate. He also

approximated the income from the to-be-secured membership and compared the total with the estimated expenditures.

At the conclusion of Secretary Thorpe's thorough review of the work of the association and the prospects ahead of it, H. E. Halbert asked that a vote of thanks be given and that the budget and ideas presented be referred to the auditing com-



J. C. Thorpe, Urbana, Ill.

mittee to meet in joint session with the members of the Ways and Means Committee. This motion prevailed.

Time for Announcing Cars.

J. C. Thorpe—After the resolutions were passed by the various associations last year they were forwarded to the National Automobile Chamber of Commerce. The reply we received was the most superficial and puerile I ever read. They said in substance that they were unable to reach any definite conclusion, that the companies that make closed cars do not want to wait until January to make their announcements, and their other reasons are of like character.

A letter from the Sherman Hotel, asking for the privilege of entertaining the 1917 convention and offering certain privileges was read and the secretary instructed to answer it.

A Talk by Robert Bland.

Responding to a request for a talk, Robert Bland, of Evanston, Ill., said in part:

The garage owners of the United States together with the car dealers have awakened up to the fact that the day of individualism has absolutely passed. Everywhere we have been throughout the country we find men working hard for the benefits of organization. Last week I had the pleasure, with some of our members, of attending one of the finest conventions I ever sat in in the city of Detroit, and I tell you, fellows, it was one of the finest conventions

I saw. One thing that was impressive was the perfect harmony. That is the feeling throughout the city of Detroit. I believe there is perfect harmony in every state in the Union and I hope to God that perfect harmony will prevail in Illinois.

I am not going to take up any of your valuable time. This question now before us—the future of the Garage Owners' Association of Illinois—must be settled and settled right. No matter what has been done—forget it. Make this the banner state organization of the United States. Gentlemen, that is within your power. The last few weeks of activity in certain localities proves that we can make this state the greatest in numbers and strength in the union. We now have 308 members against 240 a year ago.

Let's get down to business. Let's choose officers for the benefit of the entire state of Illinois independent of any section and then let us work together for the benefit of the state and the national organization. Let's come back here after lunch and get down to business and keep down to business until we have things the way we want them and the way they should be. Every member present should put his shoulder to the wheel.

My God, fellows! You can't have any better object in life than getting out and helping your fellow man. Bring him up to the level you are at. Every garage man and car dealer in the state should enjoy the benefits of this organization and if we get it on that basis I know that I, for one, will participate in the benefits with the others.

Let's get down here after lunch and do the work of this convention and do it right. Let's stand here together for the principles of the fellowship of man to the end. [Applause.]

Following the appointment of committees the convention took a recess for lunch.

AFTERNOON SESSION.

On reassembling for the afternoon session President Taylor gave a brief review of the outcome of a talk he had made before the Garage Owners' Association of Chicago, paid a high compliment to *Motor World* and GARAGE EFFICIENCY, and asked Ray Sherman to talk to the members.

Characterizing accounting as the factor which is doing more to place the garage interests on a profitable basis than any other, the speaker added that proprietors, in his estimation, were wasting their time in handling details of their work which could be looked after by men drawing 25 to 30 cents per hour.

Cleanliness being the dominant trait of Speaker Sherman, he asked: "Until you have cleaned up your own place have you the nerve to go to people outside the association and ask them to join you?"

How many of you fellows wash your windows once a week? Ten; out of how many? What do the rest of you do? I would be ashamed to have a garage window looking like the windows of some of the sales-room windows on Michigan boulevard.

Every window you have is there to use. It costs you money. It is just like hiring a salesman to work for you and then have him sit in the back office. The man who makes money is the man who has a clean place.

Insurance.

The Chair—I attended an association meeting at Detroit last May and found a man that was worse than Taylor on fads. Since that time he has developed another fad—he had been digging into the insurance question as applied to the garage business. We would like to hear from him.

F. A. Bean (of Detroit, Mich.)—I had a long talk with the chairman of your insurance committee just before lunch and he is as well qualified to talk on this subject as I am. But here goes:

When the insurance committee of Michigan was first appointed we knew nothing about insurance rates or conditions other than that we thought them unjust. The first step was to investigate a large number of garages and find out what the conditions were. We talked the matter over with the manager of the various insurance companies and we found the garage man himself was largely to blame for conditions. He did not afford any fire protection, he did not safeguard the machinery in his plant, he did nothing for the protection of his men. He did nothing that would reduce his hazard. If he was doing a livery business he did not see that his cars were properly equipped with warning signals. He allowed men that were under the influence of liquor to drive his cars on the street. He did everything that would make him a poor risk. He did not have his stairs properly railed nor his switch boards properly protected.

How Rates Are Made.

Insurance rates for compensation and liability both in and out of the garage are made in every city by a conference rating board and there were so few of the garages operating as the insurance companies believed they should that they did not offer to make any exceptions in favor of the few.

In Michigan we investigated something like one hundred different garages and found three, I believe, that would come up to the standard of what the insurance companies require.

After the convention at Grand Rapids last October the matter was taken up by the various insurance companies who are members of the conference committee. They could not help us in any way.

Difficult Phases of the Work.

Mr. Bean then outlined the difficulty of securing the establishment of a differential and outlined the work incident to such an undertaking. His further remarks dealt largely with the finding of a company that was in position to handle garage insurance and he quoted, briefly, the rates given in full in his paper read before the Michigan convention, which appears elsewhere in full in this issue. Continuing, he said:

The committee has not taken up the question of fire insurance to any great extent. That question has been considered by the board of directors of the national organization. After the special meeting held two weeks ago was adjourned I stayed in the city and spent several days investigating the company and the more I think of it the more I think taking up this question in the right way is the best thing we can do.

Mr. Bean referred to the idea of consolidating liability insurance and property damage and covering these risks with one policy. He pointed out the danger of crumbling fenders and smashing lamps

when cars are moved about in a garage by the washmen and said that rates for this class of insurance and for fire insurance could be reduced the same as rates for other kinds of insurance. He read the resolutions adopted by the Michigan organization and suggested the advisability of the Illinois organization taking similar action.

Report for Chicago.

R. C. MacPherson—I think Mr. Bean has covered about everything that is to be said. We should be thankful that Mr. Bean is here and has given us this report. We have been working on the same propositions that he has had in charge, except that we have not gone into the question in such detail.

It requires a great deal of time and we all know that Mr. Bean has spent a great deal of time and money and we all know that is the only way in which the question can be worked out.

Responsibility for High Insurance Rates.

To begin with, as he states, we are to blame for the high rates of insurance. We are being shown where we can save some money simply by managing our business instead of mismanaging it. If we would leave this convention today with that principle in mind we could start in today to get together with this Kansas City Employers' Indemnity Association and work up to the same proposition that the Michigan Association has worked out.

I think it should be a national proposition. The point is that when we carry out the idea of this kind of insurance we must manage our business properly. Take all the safeguards we possibly can. Along with all of this we must have the co-operation of our association so we can get enough members to work out a proposition of this kind. We cannot do this with a few.

I have been unable to get in touch with the balance of our committee but I would like to have you, if possible, appoint a new committee today, because I would like to have some help. There is more work than one man can do.

An Endorsement.

Mr. Bean has covered every point. I would like to see our association pass resolutions, as Michigan has done. If we do we can start right in and work out the same proposition as they have. I would like to see favorable action taken on this matter.

In response, the convention formally adopted the resolution passed by the Michigan association.

On call, R. A. Wilson made a brief talk, his views being given in full in a special article in this number of GARAGE EFFICIENCY.

Report of the Purchasing Committee.

H. E. Halbert—We made a complete report at Peoria several months ago and on that report we started a selling campaign. At the time of the convention a number of our members agreed to buy certain supplies through our purchasing committee. The old work horses sent in their checks but several who promised to buy on the floor did not fulfill their promises.

This purchasing committee is not for the profit of any one person. There is a lot of work for the men connected with the department. The object is to save our members some money and to help our state treasurer along, and he is very badly in need of funds, also to enable our members to compete with the mail order houses and

some of these would-be jobbers who act as retail merchants and jobbers combined.

When a car owner walks into one of these jobbing-retail stores and asks the price of a spark plug the reply is, "The list is \$1." The customer says: "I never pay list prices"; the jobber-dealer comes back with, "Our price to the dealer is 60 cents," and the consumer buys at that price.

Possibly that man stores his car in your garage and the first of the month he gets a bill from you for \$1 for a spark plug. He calls, shows you a cash ticket for 60 cents. You can say you paid 60 cents for the plug in dozen lots, but that don't get you very much. You are in bad, that's all there is to it.

The jobbers in a convention held recently have taken a slap at the purchasing departments of the garage owners' associations. They have gone on record. That has been the object of this purchasing department, to call attention to the fact that the garage men are not being treated right by the ordinary jobber. We have several of them in Chicago.

While these conditions exist I believe that every member of the Illinois association should buy supplies from this purchasing department. When we show that there is volume and that we are willing to buy where the price is right the jobber and his association is going to sit up and take notice.

Our oil has been knocked from one end of the state to the other. The technical expert of one of the biggest companies in the country, came out to talk oil to me. When we got through, I want to give you his words, he said: "Halbert, you do not need so good an oil as that." That is testimony showing our oil is right.

I want to make it plain that this department is fair. The contracts we have made on oil expire this coming April. Prices have advanced about 50 per cent, gasoline has advanced 100 per cent, and we all know that to buy right is to sell right. Get busy now and buy some oil.

THIS PURCHASING DEPARTMENT IS BEING KNOCKED VERY HARD. ANY TIME THE JOBBERS' ASSOCIATION WILL COME IN AND SHOW THE GARAGE OWNERS' ASSOCIATION THEY ARE WILLING TO STOP THE DIRTY WORK OF THE JOBBERS WE ARE WILLING TO CUT OUT THE PURCHASING DEPARTMENT.

The Chair—Halbert has given of his time, money and energy to promote this purchasing plan. He has done more than any other one man to get our oils, soaps, sponges, etc., to the end that the association could get a little profit and the garage man save money on the goods he must have.

At Robert Bland's suggestion a rising vote of thanks was tendered Mr. Halbert for his enlightening report and his work as chairman of the purchasing committee.

Robert Bland, chairman of the legislative committee, made a brief informal report of the work of his committee, stating

it had met with failure but that he felt assured its labors would be crowned with success when the subject again became a live issue in the state.

Harry Salvat told of the work that is being done throughout the state by the friends of the Good Roads Movement.

The chair stated that Rockford was one of the centers of the Good Roads Movement. His county expects to issue bonds in the sum of \$500,000 to carry on this work. There is now a state road from Beloit, in Wisconsin, south through many of the larger cities of the state, to Cairo, Ill.

Woodford County Activities.

H. T. Parrett (Wenona, Ill.)—We had a lively meeting at our local association about two weeks ago and our conditions are a little peculiar and vary considerably from your city conditions, for each one of our members is a small country garage owner and dealer. We embrace twelve or fifteen towns and it has been difficult to get attendance at the meetings, so we voted to have our meetings quarterly. We have elected new officers and have adopted a plan to bring our members out to our quarterly meetings. We try to have some one specific thing up that will more than pay our members for attending the meetings.

Progress in Champaign County.

J. C. Thorpe (Urbana, Ill.)—After our association was organized it boomed for a time and then a few old warhorses were left on the job. Last fall we adopted a plan which we believe you can follow in your county organization work. We had an automobile show tour. We outlined a tour including stops at all the points in our county where members resided. We planned the tour in a very definite way. Our stops were short, but they did the work, and the outcome was greater unity of thought and action than we had had before.

One member said that when he first came to Champaign to enter the automobile business he found competition pretty hard to meet. He had reached the conclusion that every automobile dealer in the county had all the qualifications of the old fellow to whom we attribute hoofs and horns. He found the other fellows were as good as he and he found that out by getting better acquainted.

Our county association is going along in first class shape. We meet once a month, have a little feed, a few cigars and after the regular routine business is over we have a representative of one of the factories talk to the fellows on problems that are common to us all, or pertinent to the policy of that particular company.

The question to be considered at our February meeting, for example, is "Construction, Installation and Care of Batteries."

We are getting to a point where we are giving away our time and material. For that reason we are working on a credit system. We have men in Champaign county who are peculiar in this respect. They will drive into a garage where you are operating on a credit basis, have their cars overhauled and run up a bill of \$175. For various reasons they cannot pay that bill. Well, our idea is for the secretary of our association to have reports on all accounts over 60 days old, and information can be secured regarding any man's standing. We intend to make our trade understand that bills must be paid. When one

of the poor pay drives his car in for repairs, we will get the cash before we start the work on that car.

A Report From the Tri-Cities.

Fred R. Young—We members of the Tri-City organization meet once a month. That is a part of our plan of operation. If a member does not attend a regular meeting he is assessed \$1. If he does attend it costs him nothing. We meet around at the three cities alternately.

We took in 8 new members at the last meeting, making a total membership of 30. We expect several additional members at the next meeting. If there are any of you who would like to come to Moline we would very much like to have you come and will assure you a good time.

Rockford Local Growing.

President Taylor told of a hurried visit to Freeport and of the organization of a local with eight members which very shortly would be increased to eighteen.

Daddy's Doing Well.

H. E. Halbert—We started out last January with about \$250 on the wrong side of the ledger, and with about 121 members. With the assistance of the board of directors, a very competent secretary and a treasurer and to solid support of our loyal members we were able to report at our January meeting \$1,000 on the right side of the ledger.

Our chief work last year was to put the association on its feet.

A year ago in January we adopted the system of billing storage in advance. That has been put into effect by the manager of our garage and I am satisfied that sooner or later that practice will become the custom throughout the country. Storage in advance is no more than paying rent in advance. Why should the garage owner hold the bag when the property owner does not. It is working out in Chicago and I think every association should take the question up and aid the movement.

We have done a lot of work the last year and today we have 131 members and we hope to report next January with 200 members.

The association has done a lot of hard work, for missionary work is the hardest work any man can undertake.

The Growth of an Idea.

We tried three times to start an organization here in Chicago. Our first effort was made in 1905. There was no association of garage men in existence at that time.

The next effort was made somewhere about 1909. Our present association was organized in 1911.

Through the efforts of our association the Illinois association started and the missionary work was carried on for a year by the Chicago organization. Also from the state and the Chicago associations the Associated Garages of America was started a year ago.

At no time have the members or the officers of the Chicago association felt they were in any other position than that occupied by any local organization in the state or in the United States. We are in this work for the benefit of us all. We want our down state fellow members to feel when they go out of these two conventions that whatever the Chicago Garage Owners' Association does in these conventions that it is being done for the good of us all.

Our board of directors and delegates have threshed this subject out for the last thirty days. It has been brought home very clearly to us on numerous occasions and

we have threshed it out and arrived at our decisions and I do not want the state members to feel that we are trying to override them at any time. We are working for the good of all in everything we try to do.

Resolutions.

A number of stirring resolutions, voicing a vigorous protest against current evils in the trade, were adopted. These are printed separately and should be very carefully studied by every reader of GARAGE EFFICIENCY. In a way they are a definite outline of the work undertaken by the organized garage men and car dealers of the country.

A plan to raise immediate funds by the sale of certificates in the sum of \$10 or multiples thereof was presented by Secretary Thorpe. These certificates are to be redeemed later, being receivable as cash for the payment of supplies secured from the purchasing department. It was further suggested that the certificates be redeemed fractionally in order not to embarrass the organization by the necessity of retiring all of them at any one time. The plan was referred to the Ways and Means Committee, with instructions to report back at the session to be held the following morning.

Constitution and By-Laws.

A number of important changes in constitution and by-laws were made. The recommendations of the committee on resolutions brought on a warm debate, participated in by many. These talks were an earnest of the interest of the members in the future and the work of the association. A resolution providing for an increase in the dues was lost by a close vote. An amendment to increase the initiation fee prevailed.

A number of other amendments were introduced, discussed, adopted or rejected. A recess then was taken until the following morning.

WEDNESDAY SESSION.

On reconvening Wednesday morning Robert Bland announced the plans of the Commonwealth Edison Company for the entertainment of the ladies, fifty box seats having been reserved at the Cort Theater for their use Wednesday night. Mr. Bland stated gravely that Big Bill Rudd was included. Following the announcement he said:

In talking with some of our members last night, particularly those who live down state, there seems to be a feeling other than that which I would wish to have, and which you may have taken from my remarks yesterday morning, but I want to say that this convention is in close harmony. If we will stand behind the officers who make the association we can make Illinois the banner organization of the United States.

Now, gentlemen, that is within your own power. You cannot expect to have an organization unless you co-operate, and I do not mean the kind of co-operation your legislative committee received. The kind of co-operation that says: "See John Jones and tell him I sent you," or the kind that sits down and writes a letter or two never will get us anywhere. We need a lien law in

this state and must have it if we stay in business. We can get it at the next session of the legislature.

More Resolutions.

The plan to issue certificates of deposit by the secretary's office, due in three months and bearing interest at the rate of 7 percent per annum, to be returnable to the members in merchandise at the rate of \$2.50 per month, beginning with the third month following issuance thereof, was adopted.

An amendment to the by-laws was proposed and adopted authorizing the appointment of a secretary at the first meeting of the Board of Directors.

Election of Officers.

Next came the report of the nominating committee, in which the following officers were recommended for the ensuing year:

OFFICERS.

W. W. Ingram, Rutland, Ill.,
president.

Wm. Rudd, Chicago, vice-presi-
dent.

Fred E. Young, Moline, director
for three years.

H. E. Halbert, Chicago, treasurer.
J. A. Cameron, Chicago, director
for one year.

For vice-president of the national
association, W. B. Taylor, Rockford,
Ill.

In the absence of President-elect Ingram, Wm. Rudd took the chair.

Retiring President Taylor—I have known Mr. Rudd ever since I became interested in association work. I can assure you you have elected a very capable set of officers for the coming year. I want to thank you for the support you have given me in the past and to extent to the new officers the same hearty co-operation I have had during the past year. Mr. Rudd, the vice president of your association, will now preside.

Jud S. Joslyn, of Rockford, Ill., was elected to fill the vacancy in the Board of Directors created by the elevation of Mr. Ingram to the presidency.

A rising vote of thanks was given J. C. Thorpe for his efficient services and the work he had done during the convention.

The secretary was instructed to reply to the invitation extended by the Sherman Hotel.

Invitations were given to hold the next meeting at Moline, Rockford, Champaign. Ex-President Taylor extended the Rockford invitation on behalf of the Rockford Motor Car Dealers' Association and the Chamber of Commerce. Mr. Taylor's invitation was accepted.

A resolution was adopted protesting against the reflection on garage owners conveyed by the wording of the advertisement of the Wayne Oil Tank & Pump Company, of Fort Wayne, Ind. Mr. Wiedmaier proposed the resolution in the interest of the garage owner.

The Board of Directors was authorized to accept the plan of raising money by the certificate plan.

H. E. Halbert's plan for financing the

organization, details of which had not been presented, was briefly considered and the board was given power to handle the

situation as circumstances might suggest.

There being no further business, the convention adjourned.

Chicago Garage Owners In Annual Session

An organization whose affairs are conducted without needless friction, whose meetings are characterized by reports of actual progress, whose members show a live interest in the work done, underway and in contemplation, is an organization that is making progress. That is the present and the past record of the Garage Owners' Association of Chicago, the daddy of all the efforts to organize the garage operators and car dealers of the country.

Officers of Big Caliber.

Any one acquainted with the personnel of the garage men of Chicago may easily form a reliable opinion of the strength of the local association by examining the official roster, duly elected and qualified at the last annual meeting of the organization, held at the Metropole hotel, January 14, which follows:

H. E. Halbert, president.

Harry Salvat, vice-president.

R. C. MacPherson, second vice-president.

Nate Jacobs, third vice-president.

B. F. Campbell, treasurer.

Directors—E. R. Dawson, A. R. Pearson.

Gas division—J. Cameron, Wm. Gibson.

Livery division—Ben Daube, G. A. Wallace.

To Join Chicago Association of Commerce.

After roll call and reading of the minutes of the last regular meeting, Nate Jacobs, reporting for the committee of which he is chairman, recommended that the organization affiliate with the Chicago Association of Commerce, the largest organization of its kind in the United States.

He suggested that a committee be appointed to complete arrangements for membership. The report was adopted.

A Competent Legal Advisor.

President Halbert announced the acquisition of John A. Bloomington, attorney, to serve as legal advisor for the association and its members. The expense of this work will be borne by the association. Attorney Bloomington will collect accounts for individual members, if desired, but that service is not included and a charge will be made.

At the president's suggestion Harry Salvat gave an outline of the good fortune of the organization in securing the services of Attorney Bloomington, stat-

ing he was one of the best known attorneys in the city engaged in handling automobile business. Mr. Salvat has been so pleased with the service Mr. Bloomington gave as legal advisor for his company that he had induced him to serve in the same capacity for the organization.

On behalf of the Gasoline Division it was recommended that members put in a supply of oil before the expiration of the present contract, which runs until April 1. Oils have gone up materially since the contract was made.

Financial.

A statement was submitted showing total accounts receivable to be \$656.50, no accounts payable and a balance on hand of \$983.04, which a later accounting—taking in receipts on the day of the meeting—brought up to \$1,003.04.

On this subject President Halbert made a brief report showing that a year ago the association had accounts receivable of \$339, against \$656 at this time. Indebtedness a year ago was \$185.90, no indebtedness now.

At the close of business a year ago the association had 121 members in good standing, against 131 at the present time.

This summary of results showed a total of twenty-seven board meetings and twelve regular meetings, all of which were well attended, President Halbert being present at twenty-five of them, Harry Salvat next with appearance at twenty-two of the meetings.

Association Accomplishments.

In reviewing the accomplishments of the year President Halbert called attention to the work done toward securing a lien law for the state, to the arrangement made for handling the local situation with respect to electric garages (the electrical division now working with the E. V. A.) and also to the fact that a rival organization had been eliminated from the field.

A new organization, the American Association of Garage Owners, had appeared during the last ninety days and was being investigated. Continuing, Mr. Halbert said:

The organization was called on to handle the question of the future of GARAGE EFFICIENCY early in the year. We finally landed it in the hands of some good men. The last four issues of the paper have been real papers with some real things in them.

We also made an arrangement with Mr. Gilbert to furnish association members with employes and by this arrangement the

association receives a revenue of \$15 to \$16 per month.

The matter of insurance rates came up for consideration and was taken over by the Associated Garages of America, so we have not gone any further with it.

The purchasing committee has saved members an extra 10 per cent on supplies. We made arrangements with the Studebaker Company whereby our members get 10 per cent discount on parts. We will get more of the companies lined up next year.

We tested 33 samples of oil and only eight out of twenty-four were Pennsylvania oil. In one case an oil with a paraffine base was being sold for 8 cents and some of our members were paying 35 cents for it. After making these tests we were able to save our members 33 per cent on oil. Another instance of saving was the purchase of one hundred barrels of Red Seal batteries at 18 cents each when these batteries were selling at 22 cents each.

We arranged for a discount of one cent per gallon on gasoline fills of 200 gallons or more.

Organization History in Chicago.

President Halbert has spent a great deal of time which was worth money to him in carrying on the work of the association. In going over the work that the association has undertaken and carried out he digressed for a moment to refer to the history of organization work in Chicago, saying in part:

Our organization is the original garage organization in the country. The first association was formed in Chicago in 1905. Few of our members recall that fact. Recently I dug up an old rate card that shows it conclusively.

The next association was the Illinois Garage Owners Association. That went along for about one year and finally the Chicago Garage Owners Association, the present association, was organized. From that sprang the state organization and later the Associated Garages of America. Now, in view of all these things I would like to hear any garage owner say that our association has not accomplished anything.

Then followed the election of officers, as recorded.

All the officers were called on and all promised renewed activity in carrying on the work. R. C. MacPherson, chairman of the gas division, in response to calls, said:

I certainly appreciate the honor of trying to handle the gas division this year. There is more work in prospect now than there was last year and we had plenty last year. Handling the problems that come before us is merely a matter of organization. If we get a strong organization we can accomplish a great deal. By a strong organization I do not mean numbers, merely, but attendance and enthusiasm shown by those who attend. I certainly hope the directors representing this division will take the interest I think they will and I also hope the members will do likewise. I will do everything I can.

Nate Jacobs, on behalf of the Livery Division, thought he should say a few words in explanation of the poor showing that had been made, due, he said, to the bad condition of the livery business in Chicago. He promised a better

showing for the association year to come.

Plans for 1916.

On behalf of the newly elected officers, President Halbert gave an outline of the work under way and in contemplation, saying that any matter of importance the members might have in mind or that later developed could be included in the program:

All association work will be handled by standing committees. One member of the board of directors will serve as chairman of each standing committee. If a member's name is placed on a committee give the work all the assistance possible.

These committees will work for the full twelve months. If we find any of our directors shirking their duties this year we will have to act under that paragraph of the by-laws which takes care of such matters.

Some of the work which I have lined up for next year I will now briefly outline for your information:

We want to establish a credit system to handle bad accounts. We got a little start this year but did not get far enough. Also we want a system of collection whereby our secretary or credit man can write a man whose account is 60 days overdue.

We will try to establish a cost system that every one of our members can understand so that each member can get an idea of what it is costing him to do business. Some of us are storing cars at a loss. We will try to establish a cost system that will be simple enough for a man to sit down and figure his cost on last year's business and from the showing made to arrange to make a profit this year.

Another important matter is to apply to the state for a charter. We are five years old and have no charter.

We will try to do something with the tail lamp law. The idea of arresting a man because his tail light goes out and fining him \$5 and costs is all wrong. That is a law this association can help knock out.

We will try to reach a membership next year of 300 garages. We will have standing committees on membership. If we get 300 members the question of reducing the dues will come up.

There is work to be done on the fake collection agencies. We will endeavor to have a committee to take care of any proposition that is put up to our members. There have been a number of sad experiences with some of the agencies. They collect your accounts but you don't. This year the board will investigate these agencies as they are reported.

Also the cut price jobber will be investigated and I believe our members will insist on cutting out the jobbers who in turn insist on quoting prices to the car owners direct.

There are several other matters to be taken up from time to time and we will be glad to receive suggestions from all our members on the evils of the business. Any time a manufacturer or jobber cares to attend a meeting we shall be glad to have them present.

Delegates for the Garage Owners Association of Illinois meeting, to be held January 25 at the Congress hotel, were selected and consisted of the board of directors and Robert Bland, Wm. Rudd, R. C. MacPherson and C. F. Weidmaier.

Robert Bland talked of the importance of the coming conventions and urged at-

tendance of the delegates at all meetings. He reviewed the history of the organization movement in Chicago, the work that the men of Chicago had done and called on them to work to put the state and national organization on a proper business basis.

"A better record next year," was President Halbert's response to a rising vote of thanks for the wonderfully efficient work he has done.

After a further consideration of all phases of the work before the organized garage interests of the country the meeting adjourned.

New Members.

The work of the committees on membership showed results in the proposal and acceptance for membership of the following:

Carpenter's Electric Garage, 2959 Indiana avenue.

Lacey Motor Livery, 59 East Forty-seventh street.

Cottage Grove Livery & Garage, 5037 Cottage Grove avenue.

Worrel Tire & Rubber Company, 7518 Cottage Grove avenue.

CREDIT RATING BOOK AND COLLECTIONS IN IOWA.

DES MOINES, IOWA.—The Iowa Automobile Business Association will issue a new credit rating book, similar to the one published last year, but about double the size, owing to the increase in membership and the gain in the number of concerns now interested in the business.

It was also decided at the January meeting to establish a collection department, to be handled by Secretary N. T. Miller, for the collection of delinquent accounts. "Slow" and "poor pay" buyers will be taught there is a mutuality of interest among automobile and supply dealers and that obligations must be respected if credit is sought.

Secretary Miller reports a great deal of enthusiasm due to the good work of the association during the last year. This is shown by dealers and jobbers seeking admission into the organization, by old members, who, during the early days of the work, lost interest in it, coming back and asking to be reinstated, by the better attendance at all meetings and by a live interest in the work that is being carried forward so successfully.

CLINTON (IOWA) SHOW.

Clinton, Iowa, Feb. 14.—The Clinton, Iowa, Automobile Dealers' Association will hold its first annual show in the Coliseum March 15 to 18, inclusive. Every effort is being made to get out a big attendance and to put on a show worthy of the men sponsoring the undertaking.



That Dirty, Grimy Hood Of Yours

Can be made just like new—you can easily do it yourself and save the cost of refinishing—all you need is Johnson's Cleaner and Johnson's Prepared Wax.

JOHNSON'S CLEANER

Entirely removes all stains, discolorations, scum, road-oil, tar and grease from body, hood and fenders. Even those spots that are ground in—mud freckles—and surface scratches

which you thought were permanent—will disappear like magic under Johnson's Cleaner. And it doesn't injure or scratch the varnish—simply cleans and prepares it for the Wax polish.

JOHNSON'S PREPARED WAX

Is the proper polish to use on your car. It preserves the varnish and protects it from the weather, adding years to its life. It prevents checking—sheds water—and makes a "wash" last twice as long.

A Dust Proof Polish

Johnson's Prepared Wax imparts a polish so hard, dry and glasslike that it cannot gather dust. It is a boon to the man who cares for his own car as it minimizes the tiresome task of washing. **Old Cars** require both Cleaner and Wax—but **New Cars** need only the Wax—to protect the finish. This treatment will keep your car like new indefinitely.

USE COUPON FOR TRIAL PACKAGES

Every family has dozens of uses for Johnson's Prepared Wax. Try it for polishing your

**Floors
Linoleum
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Johnson's Prepared Wax is clean and easy to use and economical. No tools or brushes required—all you need is a cheese cloth rag.

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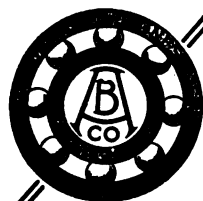
Please send me free and postpaid a trial can each of Johnson's Cleaner and Johnson's Prepared Wax—sufficient for cleaning and polishing a large car several pieces of furniture or a small floor.

Name

Address

City and State

My Jobber is



BALL BEARINGS REGROUND

Mr. Car Owner

Do not throw away your worn bearings have them reground at a small cost. Guaranteed equal to new.

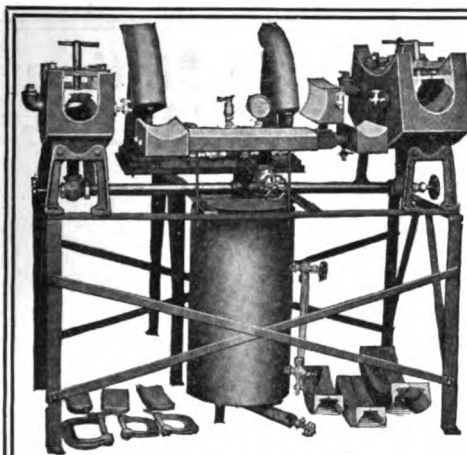
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Favor your customers by keeping their repairs bills as low as possible

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Pleased with Vulcanizer got from you, — O. W. Jordan, Beeville, Tex.

Vulcanizer is working fine. — Earl Gray, Saskatchewan, Can.

The Vulcanizer does very nice work. Am well pleased with it. — J. F. Merino, Winkelman, Ariz.

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VANDERPOOL COMPANY
Springfield, Ohio



How did you secure your first customer?

How did you secure each succeeding customer?

What provision have you made to secure future customers?

It is the future to which your attention should be directed. The surest and quickest, and at the same time most economical means you can employ to insure a prosperous future, is an electric sign. You have, no doubt, realized this long ago. Let us show you how cheaply your ideas can be carried out.

FEDERAL SIGN SYSTEM (Electric)

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ATTENTION, FORD OWNERS!—

SAVE Your Car and SAVE Money.

CUT the expense of the upkeep, gasoline and oil by using **R & M Aluminum Alloy Pistons** fitted with **R & M Conform Piston Rings**, the ring that has not only sealed joints but has the power of conforming to irregular and worn cylinders, the essential feature of a compression ring.

Get **Results** by using this combination, then, tell others.

This combination, four R & M Aluminum Alloy Pistons fitted with R & M Conform Piston Rings for only - - - \$30.00

The R & M Conform Piston Rings are suitable and most economical for all kinds of pistons, such as are used in automobiles, marine engines, steam packings, oil pumps and all air appliances where rings are used.

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Write for Prices

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BE HAPPY

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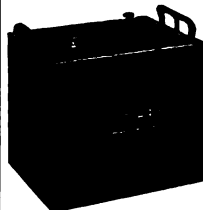
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Our plates and parts fit all the standard makes.

Are Guaranteed for **10,000 MILES** Use our plates for that next renewal and give your customer more mileage and longer life

MICHIGAN STORAGE BATTERIES
for Starting, Lighting, Ignition

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Michigan Storage Batteries have been adopted by the Detroit Garage & Station Operators' Association, and by the existing arrangement STATE MEMBERS can profit by applying to the Purchasing Committee of the Detroit Association, at 518 Grand River Avenue, Detroit.

Our batteries will fit into the space of any of the standard makes.

MICHIGAN STORAGE BATTERY CO.

65 Atwater St., E.

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Best by Test Always Wear a Smile**Non-Carbon
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Light
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Make your cars run smooth
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A Pennsylvania Product

Give us a one barrel trial order
Special discount to Garage Men
and dealers

If in need of L. O. Soap, write us
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The S. A. Schwarz Oil Co.

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Agents Wanted. Write for our propo-
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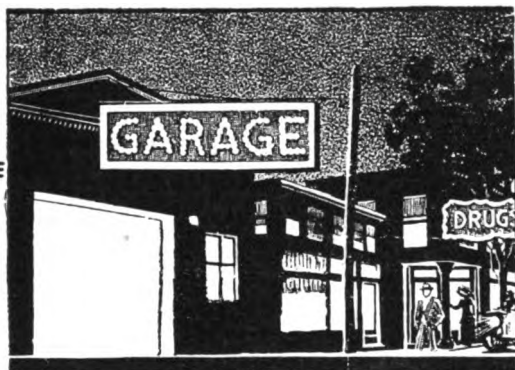
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AND

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THE OHIO RUBBER CO., Distributors
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WANTED AND FOR SALE

WANTED—MANAGER AND DEPARTMENT HEADS.

MANAGER WANTED—A thoroughly competent garage manager for a first-class garage in one of the best districts of central Illinois. Over 8,000 automobiles of the best kind now owned within a zone of 35 miles.

We also want practical men for sales, storage, repair and paint department heads.

PERU AUTO COMPANY,
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PROFIT OPPORTUNITIES.

How many of them are you overlooking? Get in touch with the profit detector. A postcard will bring complete information. Address G-1, care Garage Efficiency.

AN AID TO LARGER SALES.

WANTED, SOLICITORS—A means of getting into closer touch with your trade has been devised. If you want to get right with your customers and possible customers, write today for complete information, giving your territory, the lines you are carrying and references. No get-rich-quick scheme, but an excellent chance for the right sort of solicitors. Address GE-3, care Garage Efficiency.

FOR SALE—IOWA GARAGE.

For Sale—A modern garage, thoroughly up-to-date in every respect. Brick building 60x80, built two years ago. Equipped in thorough manner throughout; steam heat. Address Box 105, Independence, Iowa.

TO LEASE—New and thoroughly modern garage building—constructed of paving brick, steel and concrete—located on a market corner of the Chicago Motor Club Trail. Building well heated and lighted by windows all around. Large skylights and ventilators. Also electric light and power.

This is a 2-story structure with 11,400 feet of floor space. The top floor, 48x95 feet, is arranged for painting automobiles. Equipment now includes Vacuum Vapor Drying plant. Elevator to second floor with electric power.

Will lease on favorable terms to responsible parties only. No others need apply.

This is one of the best opportunities in the state for a profitable business.

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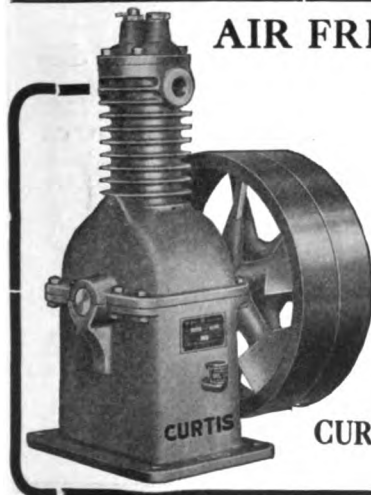
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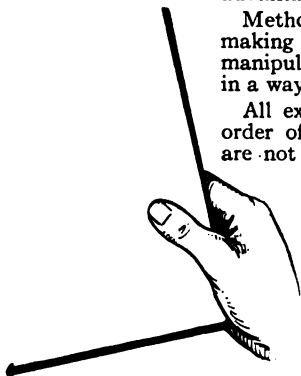
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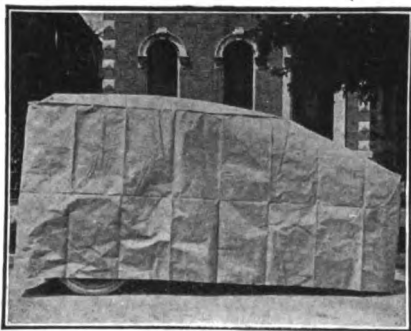
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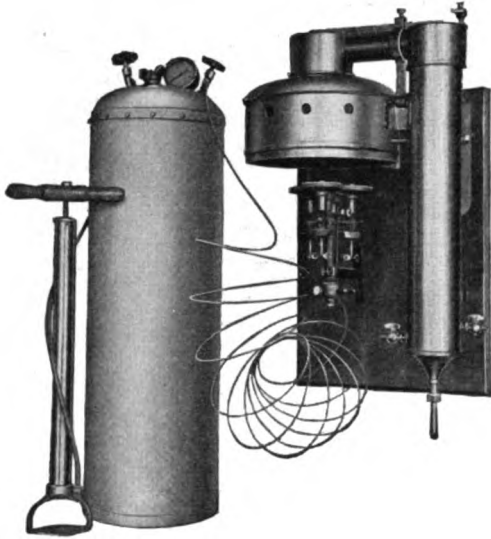
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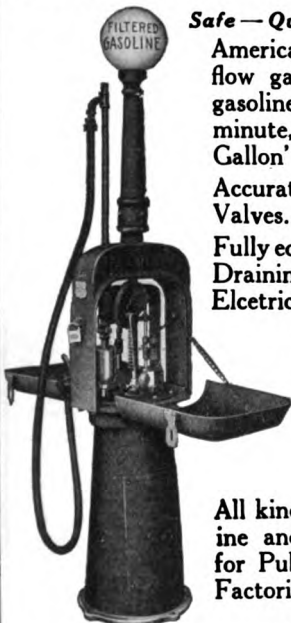
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An assorted stock calls for a small investment. Make arrangements for yours now—prepare for the coming demand.

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It will cut key seats and mill cams. For use with end mill, fishtail cutter or formed cutters.

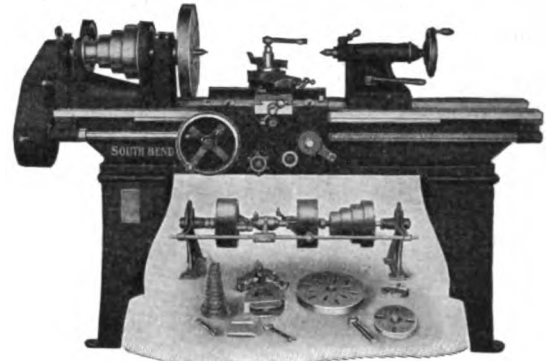
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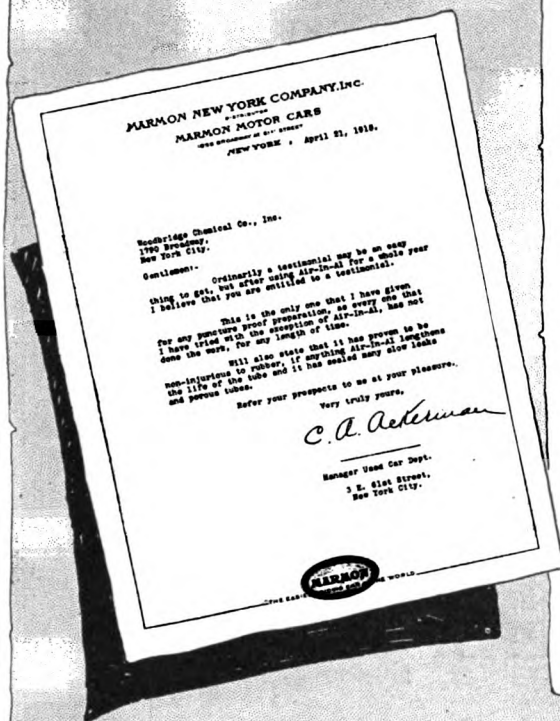
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Makes Your Tires Puncture-Proof



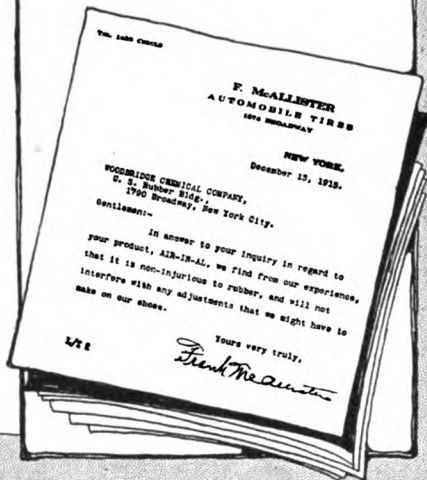
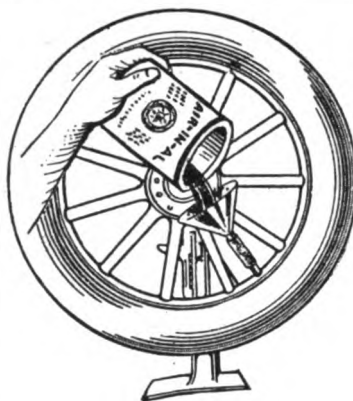
Garage Owners

There's a big profit to dealers who sell Air-In-Al, and satisfaction in knowing that you make a friend and an advertiser for yourself whenever one of your patrons buys a supply for his car.

Repair Men

Because Air-In-Al seals punctures instantly it does not follow as a matter of course that you will lose work, because when the car owner has his tire vulcanized you will have six or a dozen holes to doctor instead of one. See the point?

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Our ILLINOIS GARAGE OWNERS' POLICY completely covers the needs of the garage owner, even with a livery in connection. It is but one policy but it covers NINE hazards.

Write us for further information.

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HARRY M. McCONNELL, General Agent

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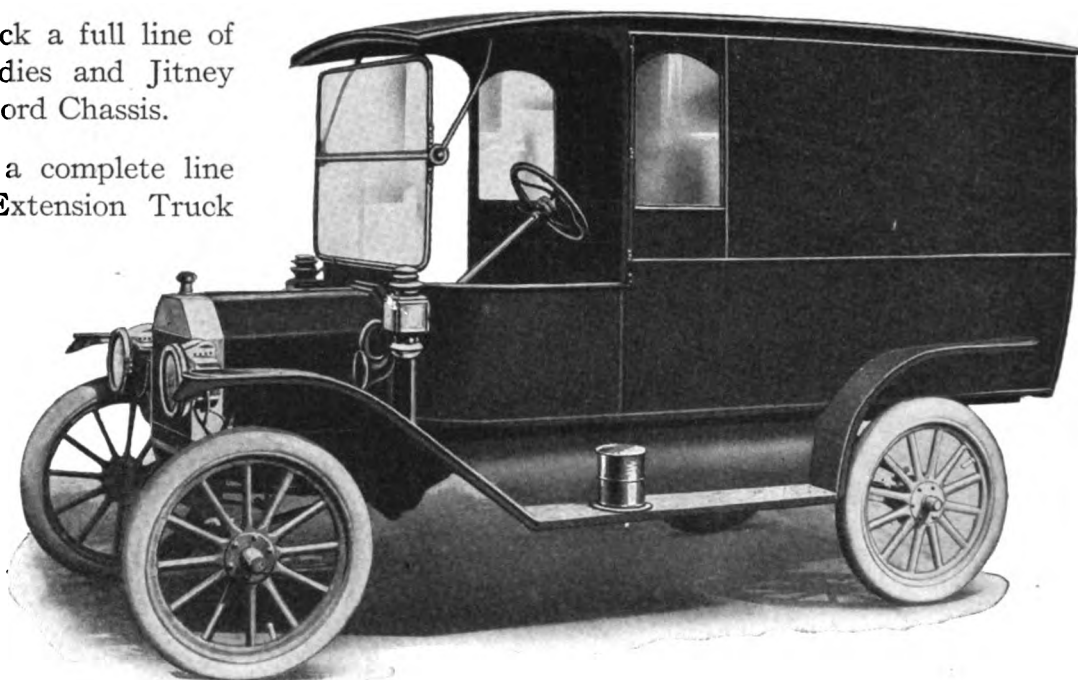
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HERE'S A BOOK YOU NEED

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Step by step the book takes you through construction engines; 4, 6, 8 and 12 cylinder, carburetion, valve timing, ignition timing, and all up-to-date electric systems—repairing, adjusting, etc. The repair subject is very complete and extremely useful. Hundreds of illustrations on this subject alone.

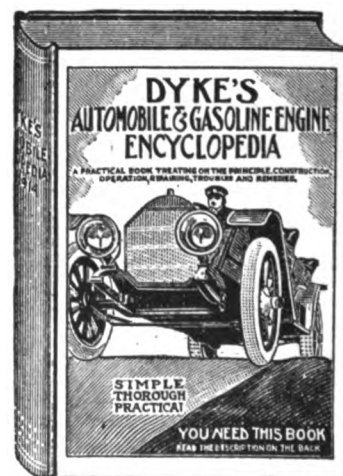
This book is compiled by A. L. Dyke, the man who invented the first auto supply business, manufactured the first valve feed carburetor, and published the first practical book on automobiles in America.

The book is endorsed by Elwood Haynes, Charles Duryea, Lord Montagu (founder of boulevards in London), Barney Oldfield and other notables. It is read by the faculty of five Automobile Schools.

It teaches you the principle, construction, repairing and adjusting of all cars.

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| (3)—Steering, Springs, Brakes. | (13)—Carburetor Adjustments. | (22)—High Tension Magnets. | (31)—Lighting a Car. | (42)—Vulcanizing and Repairing Tires. |
| (4)—Axles, Differential, Bearings. | (14)—Cooling. | (23)—Care of Magneto. | (32)—Storage Batteries. | (43)—Digest of Troubles. |
| (5)—Clutches. | (15)—Lubrication. | (24)—Ignition Timing. | (33)—Electric Vehicles. | (44)—The Automobile Repairman. |
| (6)—Change Speed Gears or Transmission. | (16)—Ignition; Low Tension Coil. | (25)—Engine Starters. | (34)—Operating a Car. | (45)—Garage and Shop. |
| (7)—The Gasoline Engine. | (17)—Ignition; High Tension Coil. | (26)—Electric Starters. | (35)—Rules of the Road. | (46)—Repairing. |
| (8)—Engine Parts. | (18)—Spark Plug and Coil Troubles. | (27)—Electric Generator. | (36)—Care of a Car. | (47)—Trucks. |
| (9)—Valve Timing. | (19)—The Modern Battery and Coil Ignition. | (28)—Leading Electric Starting and Generating Systems. | (37)—Accessories. | (48)—Tractors. |
| (10)—Firing Order. | | | (38)—Insurance, Laws, License. | (49)—Brief Treatise on Other Internal Combustion Types of Engines. |
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Address Book Department, Garage Press, Transportation Building, 608 So. Dearborn Street, Chicago, Ill.

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VOI. VI. MARCH, 1916. NO. 3.

GARAGE EFFICIENCY

THE NATIONAL GARAGE MONTHLY

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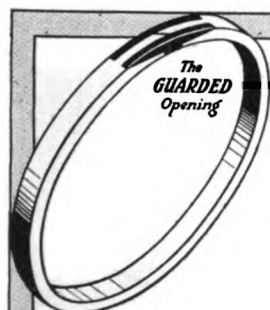
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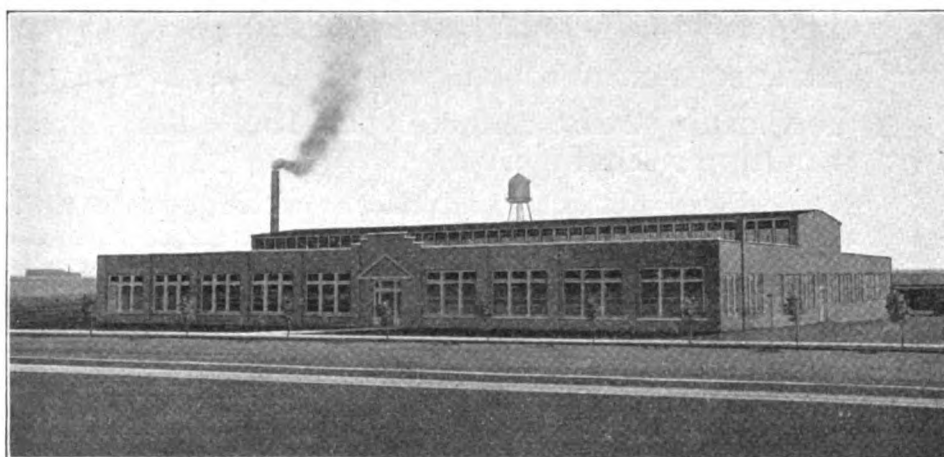
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The Factory Behind Burd Ring Perfection



Standard Equipment
for 1916 in

Packard Twin Six
Haynes Light Six
Haynes Light Twelve
Saxon Four
Saxon Six

and others of equal
prominence

The largest factory in America devoted exclusively to the manufacture of Patented Piston Rings. Now working 23 hours per day in an effort to keep abreast with the requirements of seventeen sales offices and numerous automobile manufacturers who insist on using only mechanically perfect piston rings.

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Rayfield Carburetors are sold under a positive guarantee to give more miles per gallon regardless of the make of car or carburetor used.

Absolute satisfaction or your money back. Order thru any dealer

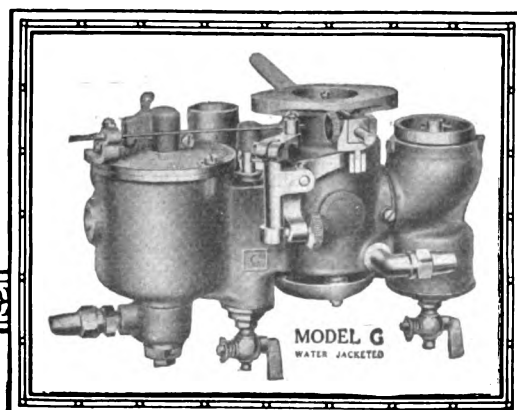
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NEW YORK

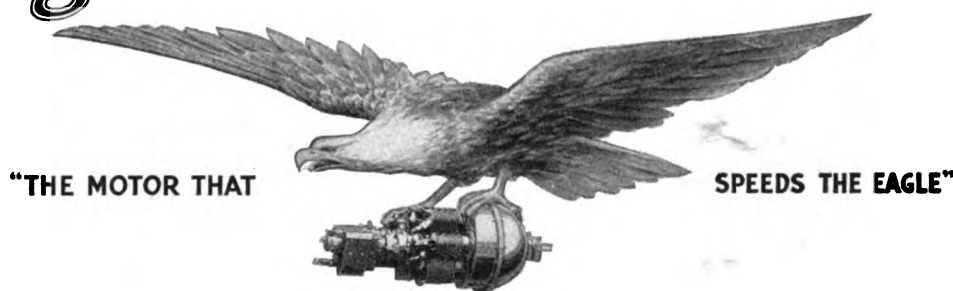
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The Eagle-Macomber Motor Car Co.



A Car You Can Afford to Own



Three-quarter side and front view of Model 1-A Eagle Light Car, Roadster, equipped with 18 H. P. Macomber Rotary Air-cooled Engine. Photo taken on 18th St., Chicago; the residence of the late Geo. M. Pullman in background.

Luxury and Economy a Combined Reality

View of Model 1-A Eagle Light Car, Roadster, equipped with an 18-20 H. P. Macomber Rotary Air-Cooled Engine. Almost total absence of vibration. Gasoline consumption more economical than reciprocating engines of equal weight and power. **Price with Standard Equipment \$700.00.**

SPECIFICATIONS—Motor, Macomber Rotary. Cylinders, $3\frac{1}{2}$ bore, $3\frac{1}{2}$ stroke. Cooling, Air. Ignition, Atwater Kent. Electric starter. Clutch, multiple disk. Transmission, selective sliding gears. Rear axle, full floating. Front axle, I beam, drop forging. Wheel base 108". Gear shift, center control. Wheels, extra heavy second growth hickory or wire wheels at slightly increased cost. Fenders, crown type. Springs, Cantilever type in rear, half elliptic front. Tires, 30x3 $\frac{1}{2}$. Detachable rims.

STANDARD EQUIPMENT—This includes all electrical equipment, lamps, one-man top, windshield, Stewart-Warner Speedometer, electric vibrator horn, foot rail, foot accelerator, one extra rim which is held in place by special tire holder, tools, jack, pump and tire repair outfit.

Essential and Superior Features of the Power Plant

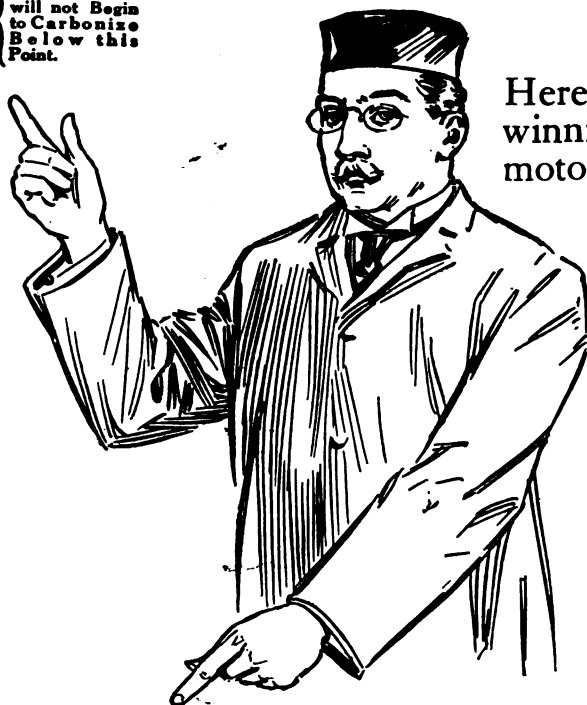
The Macomber Rotary Air-Cooled Engine is not only smooth running (were it set on end instead of horizontally with a two-point suspension, it would spin as calmly as a whirling top) very economical in fuel consumption and light of weight, but its cylinders and other parts are nearly all interchangeable. A blown out piston head means nothing more than about five minutes work of the driver to place a new one out of spare parts in his box. Such a change has been made in less than that time. On account of the centrifugal force the cylinders do not foul easily, but when cleaning becomes desirable they can easily be detached and cleaned in a comfortable place. This engine can be taken apart and re-assembled while mounted in the car, no derrick being necessary. A simpler or more fool-proof engine we have never seen. It develops its full rated power, another important feature of interest to the motorist.

Write for further particulars. Dealers' applications considered in the order of their receipt. Deliveries to begin about April 1st Address, Sales Department.

Eagle-Macomber Motor Car Co., Sandusky, O., U. S. A.

410°

Viscomotor Oil
will not Begin
to Carbonize
Below this
Point.



365°

Many Oils Be-
gin to Carbon-
ize Here.

350°

This is the Or-
dinary Heat of
a Motor.



Safety First for Your Customer's Motor!

The margin of safety between the heat of the motor and the temperature at which Viscomotor Oil carbonizes is 55 degrees more than the margin of safety in average oils. Most oils begin to carbonize at a temperature only 15 degrees above the heat of your motor at moderate speed, and *completely burn* before Viscomotor even begins to carbonize.

Perhaps that is why you are not getting all out of your motor that you should get. Perhaps that is the reason why your piston and your piston rings wear out faster than they should—why your cylinder scores. Why you have heavy, needless repair bills to meet.

Specials

March 17 to April 17.
Write today for our special
offer of lubricating and
transmission oils and cup
grease, **for Dealers only.**

DEALERS!

Here's a chance to add another winning seller to your line. Viscomotor, the Anti-Carbon Oil, heavily advertised now, is rapidly winning hosts of friends. People will be looking for it in your town. Get this new business for yourself. The first to capitalize on our efforts will have a big advantage. Write us today for detailed information. We turn inquiries over to dealers as fast as we get representation. Orders filled by us are credited to our dealers.

Viscomotor

The Anti-Carbon Oil

Lubrication Specialists

For more than a quarter of a century we have devoted ourselves to studying and solving problems in lubrication. Our engineers and scientists are national authorities. Viscomotor is the final triumph of their skill. It is made in five formulas, to meet every need. Let us prescribe the one that will end *your* troubles and make motoring a new pleasure. Tell us your problem and difficulties. Thousands are using Viscomotor who couldn't be lured to go back to old hit-or-miss methods. Satisfaction guaranteed or money refunded.

Viscomotor Frigid Oil flows freely in cold weather.

Viscosity Oil Company, Dept. 000, Chicago

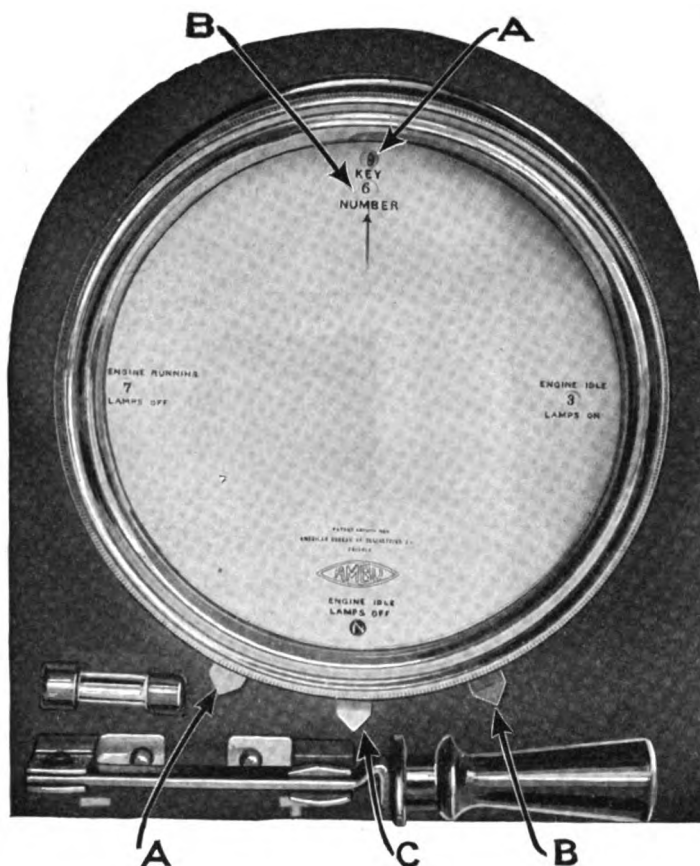
America's Lubrication Authorities

Main Office and Plant:

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Makers of Viscomotor Oil, Visco Transmission Oil
and Creole Cup Grease

Branches in Nine Cities

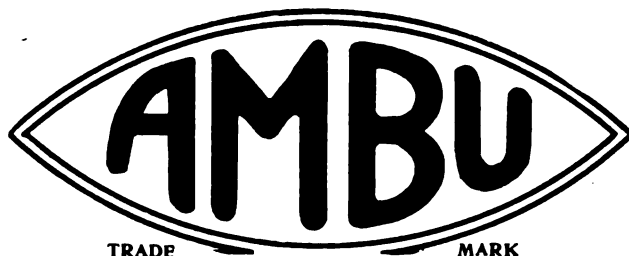
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Superior, Wis., 813 N. Third St.
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Untried or Unproven in
the Construction of this
Instrument.*

Detects—Locates
Accurately and
Quickly trouble in
any American
made Starting
and Lighting Sys-
tem used as stand-
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from the time of
the first installa-
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Electric Trouble Shooter

The addition of a self contained volt-ammeter to Ambu now enables us to offer an instrument which in its scope answers every requirement of a garage or repair man—for electrical repair work on automobiles and for all testing purposes.

Ambu is a combination of elements that have been used by expert electrical repairmen for years when it is necessary to make quick and accurate tests. Ambu has some of the characteristics of an ammeter, some of a voltmeter, and in addition, the improvements introduced and patented by the American Bureau of Engineering. Yet it is neither an ordinary ammeter, voltmeter or anything else heretofore used. Because it is a new thing, we have adopted a new name, "Ambu."

The connection of Ambu to the battery of a car in trouble allows this instrument to indicate immediately what kind of trouble is present. A principle is used that allows all faults to be divided into eleven classes, these classes caring for whatever trouble may be present in the electrical systems of the car. Each class of trouble is designated by a number and these numbers appear on the dial of Ambu.

A reference to the chart whose number appears on the dial gives the trouble—its location and its remedy.

AMBU SERVICE

AMBU Service consists of AMBU wiring diagrams—showing the exact layout of every electrical system as applied to automobiles; covering 400 or more cars.

AMBU Repair Charts—giving concise and practical working information and complete instructions on how to make repairs quickly and positively.

AMBU Service Bulletins keep you posted on all changes, additions and improvements which may be made in the various systems.

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AMBU Instruction Book—compiled by experts, gives you a complete working knowledge of the various makes and types of electrical starting and lighting systems.

The complete AMBU Service contains information impossible for you to obtain in any other way—classified, systematized, readily accessible, and filed in a handsome, substantial metal case with lock—a compact authoritative service.

A Suggestion—A substantial increase in the price of Ambu is necessary. It is advisable that all repairmen contemplating the purchase of Ambu place their orders with delivery date specified in order to assure themselves of the present scale of prices.

Write today—Use the convenient coupon.

COUPON—Tear Out and Mail Today
American Bureau of Engineering, Automobile Dept.
108-38 Wabash Ave., Chicago, Ill.
Gentlemen:—I am interested in the AMBU Trouble Shooter as advertised in GARAGE EFFICIENCY. I wish to take advantage of the present price.
Please consider this a memorandum or order, subject to change upon receipt of detailed information from you.
Name
Address
City
State

American Bureau of Engineering, Inc.

1018-38 Wabash Ave. Automobile Dept. CHICAGO, ILL.

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"Saved \$200 in 5 hours. Operated by a novice. No limit to its adaptability. Other welders became hot enough to pop out, but yours kept cool right up to the tip."

St. Joseph Valley
Railway Co.

"We have tested your D-4 Outfit at cutting plate iron and steel and we are highly pleased with same."

F. O. Smith
Shipbuilding
Co.

"I have been using welding outfits for the past 2 years, but knew nothing of what a real welding torch was until I saw the Imperial torch. It has worked wonders for me."

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Note These Big Features!

—features that no practical welder can overlook—features that mean *better work, great time saving and all-around economy* are offered in Imperial Oxy-Acetylene Welding and Cutting Equipment.

Safety Back-firing is the most dangerous drawback to most welding and cutting apparatus. Numerous rigorous tests prove that Imperial Equipment absolutely overcomes this vitally serious detriment, thus permitting the operator to work in a cool, confident attitude, with increased production as a result. Imperial Regulators have an automatic safety feature possessed by no other regulators.

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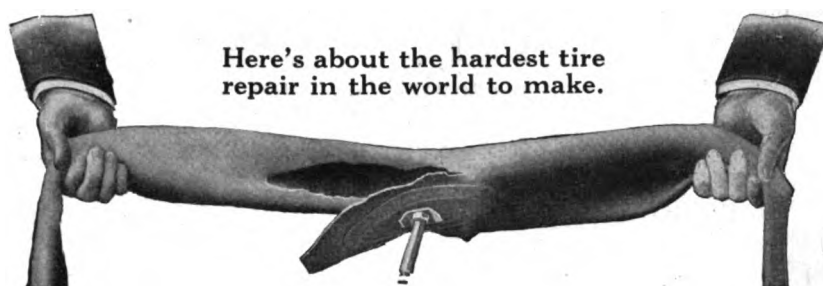
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CHICAGO

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Every Garage Man should have our new catalog No. 132, just off the press. Gives operating costs, views of work actually done and other valuable data.



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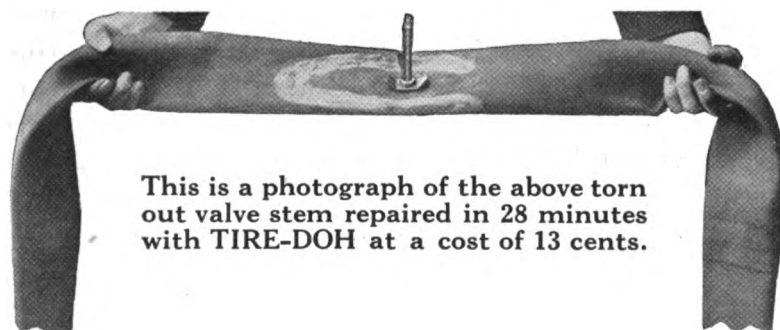
will satisfy them and bring them back for more.

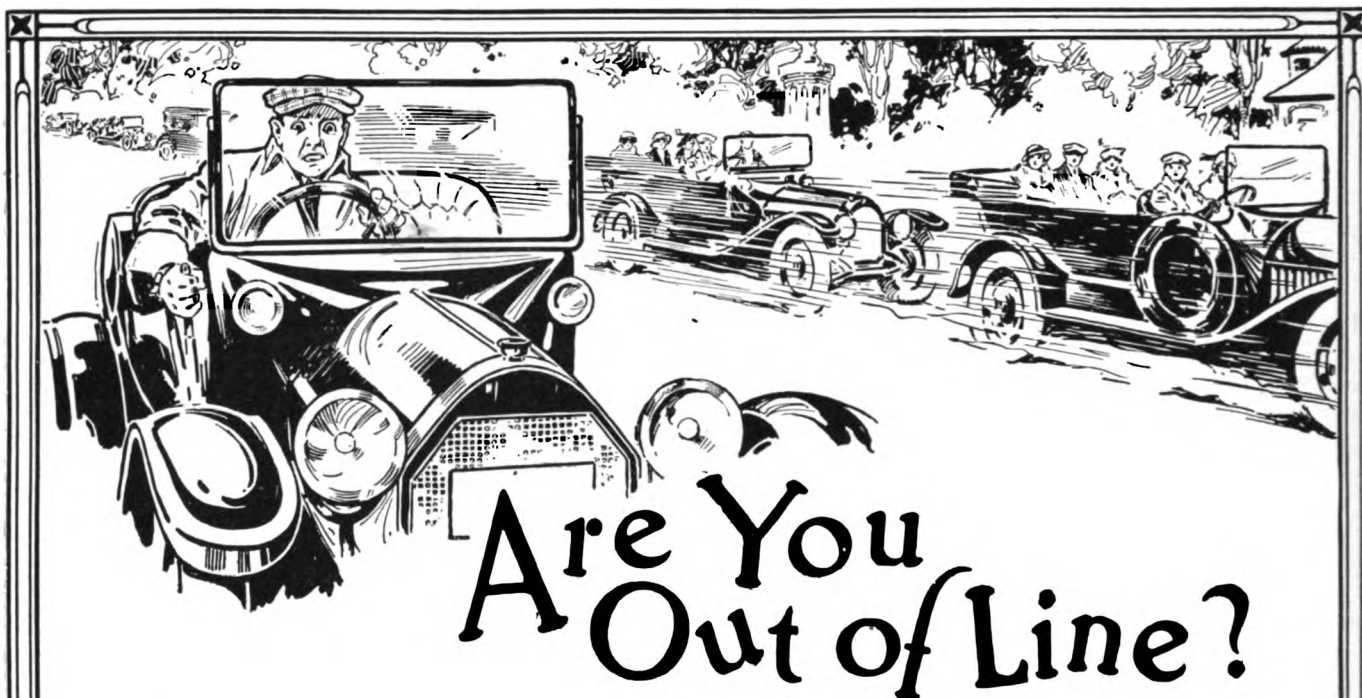
The repair shown here is only one of many that are easily made with TIRE-DOH. You will find it convenient, quick and economical yourself where you do not want to get up steam for vulcanizing. TIRE-DOH never fails. It repairs the smallest puncture or the biggest inner tube blowout or tear with equal success. Keeps cuts and holes in casings from developing into sand blisters and blowouts. 500,000 owners use it—10,000 garages and dealers sell it. That proves Tire-Doh does the work—pays both user and seller.

Tire-Doh repairs any article of rubber, makes the repaired place stronger than it was before.
If your jobber does not handle it, write—



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Polarine
FRICTION REDUCING MOTOR OIL

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Polarine sales are increasing at the rate of one million gallons per year.

Its use is recommended by the Standard Oil Company for any style or make of car.

Use Polarine, and lubrication begins the minute your engine starts.

Order a half barrel today. It is cheaper that way than in smaller quantities.

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Use Red Crown Gasoline and get more power, more speed, more miles per gallon

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FRANK RODERUS
Business Manager
WESLEY T. CHRISTINE
Managing Editor
JOHN B. FINUCAN
Advertising Manager

Garage Efficiency

OFFICIAL SPOKESMAN FOR
CHICAGO GARAGE OWNERS ASSOCIATION
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ILLINOIS TIRE AND ACCESSORIES DEALERS' ASSOCIATION
GARAGE OWNERS ASSOCIATION OF OHIO
IOWA RETAIL AUTOMOBILE DEALERS ASSOCIATION
GARAGE OWNERS ASSOCIATION OF MICHIGAN

Volume VI.

CHICAGO, MARCH, 1916.

Number 3

Devoted to the Interests of
GARAGE OWNERS
GARAGE OWNERS' ASSOCIATIONS
AUTOMOBILE and
SUPPLY DEALERS and REPAIR MEN.

FOUNDED BY
THE CHICAGO GARAGE OWNERS'
ASSOCIATION

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INTERINSURANCE.

Interinsurance is an idea that showers a great many benefits on all who understand and use it.

Like any other idea, it may be abused, misapplied or an endeavor may be made to employ the principle by those who do not thoroughly understand it.

Back of interinsurance is the thought of reducing the cost of writing insurance and administering it, to reduce the hazard and consequently minimize the loss, and through these reductions to lower the premium it is necessary to pay for protection.

The failure of interinsurance—and it has its instances of failure as well as its records of great successes—is due to endeavors to employ the idea without understanding it.

To work out successfully not only must those in charge understand the insurance business and all that is involved therein, but they must know the interinsurance business.

It was for this reason that a thorough investigation was made by competent men representing the garage owners and car dealers' organizations before an endorsement was given.

ORGANIZING

Conservative garage operators and car dealers of the country are giving the strongest possible endorsement to the plan of organization adopted in Chicago in January. Their endorsement takes the form of local organizations, affiliated with the State association or with the National Automobile Trade Association.

District meetings have been held in a number of the larger centers in Ohio, Michigan, Pennsylvania and Indiana.

The active workers of the National Automobile Trade Association have their time more than occupied responding to calls for aid in perfecting local associations.

During the discussion of the future of the association on the floor when the National was launched in January it was suggested that there was a possibility of securing 8,000 to 10,000 members during the year. If interest continues at its present flood tide, that membership should be surpassed.

It is easy to prophesy. An organization with 10,000 members is a tremendous affair. Time, money, enthusiasm and, above all, much hard work is represented by such an accomplishment, but in view of the expressed attitude of garage men and car dealers it does not seem that a membership of 10,000 is beyond the range of possibility.

The garage men and car dealers are accepting a clean-cut business proposition. They are recognizing the need of government of the industry for the best good of the industry. They are willing to pay the cost of establishing that government, realizing that the cost is small compared with the benefits to be derived from the protection it will give.

THE PRICE OF GASOLINE.

Commodities are not sold for what they cost but for what they will bring. If gold lay in veins, like coal, it would cost very little more to mine a ton of gold than it would to bring out a ton of anthracite, but it would be worth a great deal more.

It does not cost any more now to make a gallon of gasoline than it did a year ago with the one exception that the price of crude oil is higher.

Business for profit means just as much profit as may legitimately be secured. When demand increases beyond the supply, the men controlling production will reap a harvest.

It does not appear that production has increased, while the demand is growing steadily and promises to show still greater gains. Possibly if the refiners had uninterrupted access to the oil fields of Mexico the supply of crude oil could be increased materially but in that connection it should be remembered that Europe levies tribute on the oil supply of our very much perturbed republic next door south.

Garage operators never have made much money from the sale of gasoline. Allowing 10 percent for evaporation and 10 percent to cover cost of handling and the concern is lucky that comes out even on the gasoline account. There is or should be a difference between expenditures and receipts but not more than sufficient to offset the cost of handling. Gasoline largely has been supplied on the same basis as free air.

Garage men individually and through their organizations, are protesting against the increase in the price of gasoline. Prices have more than doubled during the last twelve months. The possibility of still higher prices has cast its shadow over the gas engine. The small refiner is cheerfully accepting as much for its product as the larger companies are getting.

Price competition does not seem to be

a factor at present. The independent operators in the midcontinent district were the first to advance their rates last fall.

GARAGE EFFICIENCY holds no brief for the oil interests, but before condemning it might be well to look the situation fairly in the face. In doing so, it might be well also to remember that prices advanced during the period of light consumption.

The outcome of an investigation by Secretary Lane was a recommendation of a kerosene carburetor, which carburetor manufacturers deem wholly impractical for the reason that much of the product at one time sold for kerosene is now put on the market as gasoline. The advantage of the slight increase in the production of fuel for motors by the employment of kerosene would be more than offset by complications in its use.

If current prices are unreasonably high they will decline, or an increase in the production of crude oil also would operate to bring values down.

This question is open to debate and to investigation, but the prospect of relief through governmental interference is not very cheerful.

GARAGE MEN NEED BUMPS?

In the course of a review of the needs of garage men, one of the larger concerns supplying the trade with a motor necessity said:

"Your suggestion that the garage men need bumps is absolutely correct. No one knows it better than we do and yet we are up against a somewhat difficult problem, as we do not dare to do anything to antagonize our dealers. Most dealers feel that they are a great deal better off than they really are and judge themselves as competent business men. Were we to tell them that their methods are comparatively slipshod, we might notice a difference in our dollars and cents column."

Mr. Garage Man, is that true?

Are you self-satisfied? Do you believe you know all there is to know and that your methods are the last word in perfection?

Scientists have demonstrated the fact that it is possible to catch more flies with molasses than with vinegar, but who cares to serve as a fly-trap?

What the garage men of America need is practical aid in becoming better business men. The garage men, the worthwhile repair shop and the car dealer who is a merchant is on the lookout for new ideas, for better methods, for ways and means of improving his business.

By all means let him have them from every source from which they can be secured. Every little bit helps and every little help is a distinct gain. Cleaning up

the physical premises and cleaning up the business principles are the two big tasks before the garage men of the country.

NOW—if that statement is not true, if there is a reader of GARAGE EFFICIENCY that has other ideas, will he kindly bring them forward?

If you agree with the ideas expressed, tell us so, and with that statement tell us of your own failings or those of the other fellows with whose business you are familiar. All correspondence absolutely confidential.

U. S. TO AID GOOD ROADS.

By a vote of 281 to 81 the House of Representatives passed the "Shackleford Bill," carrying an appropriation of \$25,000,000 to aid the states in improving the public highways.

The bill clearly defines the aid the Secretary of Agriculture shall give the states in the construction and maintenance of rural post roads which shall be "any public road over which rural mail is, or might be, carried outside of incorporated cities, towns or boroughs having a population exceeding 2,000."

Each state is to receive outright the sum of \$65,000 and one-half of the remainder to be divided is to be apportioned among the states according to population and the remaining half according to the mileage of rural free delivery

routes to the extent that such population and routes bear to the population and routes of all the states.

States desiring aid "may apply" and the Secretary of Agriculture may approve or reject the application. This measure does not mean that the Federal government will undertake to build roads in the states, but that it will aid the states in the work to the extent of the appropriation made, the states to contribute a like sum for the work.

If the full \$25,000,000 is appropriated the shares of the several states will be as follows:

Alabama ..\$	579,180	Nebraska .	514,634
Arizona ...	117,512	Nevada ...	101,102
Arkansas .	430,398	New Hamp.	175,494
California .	504,788	New Jersey	438,054
Colorado ..	253,168	New Mex.	155,802
Connecticut	258,638	New York..	1,594,412
Delaware .	103,290	No. Carolina	655,760
Florida	220,348	No. Dakota	325,372
Georgia	722,494	Ohio	1,198,384
Idaho	170,024	Oklahoma .	532,138
Illinois	1,372,330	Oregon	248,792
Indiana	854,868	Pa.	1,469,696
Iowa	841,740	R. I.	139,392
Kansas	747,656	So. Car. ...	442,430
Kentucky .	580,247	So. Dak. ...	337,406
Louisiana .	345,064	Tennessee .	694,050
Maine	276,142	Texas	1,070,386
Maryland .	318,808	Utah	143,768
Mass.	535,420	Vermont ..	187,528
Michigan ..	850,492	Virginia ..	591,214
Minnesota .	733,434	Washington	301,304
Mississippi.	497,130	West Va. ..	340,688
Missouri ..	974,114	Wisconsin..	736,716
Montana ..	192,998	Wyoming...	125,170

Garage Man Is Now a Salesman

"The greatest business in the world." That's what one of the most successful garage and tire men in the country calls his business, says F. C. Millhoff, sales manager of the Miller Rubber Company, Akron, O. And before the man went into it, three or four years ago, he had in turn been a traveling salesman in the textile field, a branch salesman for a leading auto manufacturer and proprietor of a small tire and accessory shop. Now he owns a string of three garages in one of the largest cities, and people speak of him as having made his pile. So we can take considerable stock in what he says.

The garage and tire man of today is a real merchant," says Mr. Millhoff—"a business man, first and last.

"True, he has considerable mechanical knowledge, and he tinkers as of old. But most of his ability and energy are directed along modern merchandising lines, which he has found are the lines of least resistance in building his business.

"Particularly progressive is the garage and tire man who handles one of the

leading brands of tires, such as Miller 'Geared to the Road' tires. Miller dealers everywhere are proving that this is the shortest and surest route to success.

"The modern garage man knows the principles of salesmanship. He knows how to adapt the great tool, advertising, to his business.

"All in all, the modern garage and tire man plays a pretty important part in our commercial life. And no one thinks of laughing when he declares that his is 'the greatest business in the world.'"

THAT FORT DODGE SHOW.

That Fort Dodge (Iowa) Show was a hummer from start to finish. The attendance was in excess of 23,000. It was rated the best decorated show west of New York, not excepting the Chicago show. The visitors were entertained with plenty of good music and treated to everything else that goes to make a successful automobile show. Exhibitors report splendid business and every exhibitor and every visitor was thoroughly satisfied.

Urging Nation-wide Co-operation in Handling Credits and Collections

Exchanging credit information and co-operation in making collections constitute a phase of the work before the organized retail automobile trade interests of the country. This work can be made effective and comprehensive only as the organizations are perfected and comprehensive in their scope.

A start may be made by the organizations now in the field, the system of exchange be perfected and the scope of the work extended as the organization of the retail automobile interests is enlarged.

N. T. Miller, secretary of the Iowa Automobile Business Association, Des Moines, Iowa, has made a suggestion respecting this phase of co-operative work that is worthy of the consideration and acceptance of all the organizations now in the field. Mr. Miller's letter follows:

DES MOINES, Iowa.—Editor *Garage Efficiency*: I should like to go on record, through the columns of your paper, as being in favor of nation-wide co-operation between the various automobile organizations in the country in the matter of handling collections.

This organization has recently been trying out a collection department, and in doing so has found that a number of accounts are against parties who have moved away and who refuse to make any reply to letters sent them with regard to their account.

My idea is that if there is an automobile association in this town to refer the account to the secretary so he can call on the man personally and at least get him to say something, the delinquent customer will see immediately that the automobile men in his new place of residence are onto him and that if he expects to get any credit in his new location it is up to him to clear his past record.

Whether or not this is done, it gives the association in the new town the information, so that members of that association will not have to learn by experience that the man does not pay his bills.

We would be glad to get this information in our association, and in order to get it we are willing to make this personal call on any new man coming to our city, so that our members may be informed of the circumstances and govern themselves accordingly.

San Francisco Ready to Co-operate.

A copy of Mr. Miller's letter was submitted to the Garage Owners' Protective Association, of San Francisco, and a reply received from A. D'Ettel, secretary, as follows:

It will be a pleasure for our association to co-operate along the lines suggested by Mr. Miller.

We have a very good credit bureau in operation and would consider it a pleasure to assist other associations in collecting their doubtful accounts. Our own proceedings for handling these accounts is as follows:

After the account is turned in to the

secretary, one or two letters are written, according to the information given with the account. If no result is obtained by these letters, the account is given to our collector, who receives 10 per cent of the account, if he is successful. He endeavors to get complete information regarding the party, and in the event he is unable to collect the account the matter is turned over to the attorney, who charges 15 per cent for straight attachment and 25 per cent for suit wherein he appears in court.

I take it for granted that associations turning in accounts for collection to us would be willing to stand the same expense as our members are satisfied in paying to have the account collected.

In formulating a general plan, I believe it would be a good idea to have conditions, terms and arrangements uniform, or to have the account handled in accord with the practice sanctioned by the local association.

Michigan Will Aid.

DETROIT, MICH.—Editor *GARAGE EFFI-*

CIENCY: In reference to Mr. Miller's letter on the question of national collections, would state that is one of the things of vast importance which our association has had in mind and the sooner it can be brought about locally as well as nationally the better it will be for the trade, especially for the garage division.

Any resolution that may be necessary to bring up at our next meeting to help this movement will receive my personal attention and, speaking for the association, I feel its hearty support may be pledged.

We thank you for taking up the matter in this way and bringing it to the attention of the different associations, and for your other valuable work in this connection.

L. C. STEERS,

Secretary Garage Owners' Association of Michigan.

Valuable Information on Garage Fire Prevention

The subject of fire prevention in the garage is only just becoming to be thoroughly understood. The existence of garages and the peculiar problems that they engender is so comparatively a new development that until recently data upon which to base any really constructive theories has been lacking.

First and foremost, naked fire must be rigidly excluded from the garage. The only lighting system that has any possible place in a garage, public or private, is electric lighting, with its tightly closed glass bulbs. Heating apparatus for the garage must be of a type that keeps the flame from contact with the gasoline vapor that is bound to be present in any building where cars are stored.

Every garage should have a drainage system. Of course, the small private car shelter cannot have, nor does it need, the elaborate drainage system that must be installed in the big public garage. In constructing any garage, however simple it may be, it is easy to supply some means for draining it at little or no added expense. For instance, the floor may be built at a pitch that will permit it to drain into what is known as a French drain, a barrel filled with rubble and sunk into the earth. A cheap and well-drained floor may be made of cinders packed down firmly. The cinders allow the drippings of gasoline and oil to filter through into the ground beneath.

The advantages of the underground system of storage of gasoline have made themselves pretty apparent. Tanks and pumps needed for this type of storage system may be had at fairly reasonable prices nowadays and the money spent in one pays dividends of safety.

The volatile characteristics that make gasoline so admirable as a motor fuel make it intensely dangerous to handle, unless it is treated with all due respect. Gasoline vapor will play the most surprising tricks at times. In any confined space it gathers quickly in dense and dangerous layers, hanging low above the floor. A spark, the ember of a burnt match stick, a smoldering cigarette end, any of them is enough to start a fire that is extremely hard to put out.

At the convention of fire department chiefs from all the large American cities held last year the head of the department of a middle western municipality expressed the opinion that more than half the fires in garages were due to smoking by chauffeurs. He further stated that nine-tenths of all garage blazes were due to some sort of carelessness. It might be smoking or it might be permitting the engine and sod pan to get in such a foul condition that any chance spark or backfire had potential fuel waiting for it. In the discussion that followed the consensus of opinion bore out in general effect the findings of this gentleman.

How to Secure a Garage Lien Law To Protect Operators in Any State

In a talk before the members of the Chicago Section of the Electric Vehicle Association of America, now the Electric Vehicle Section of the National Electric Light Association, Judge A. J. Petit stripped the veneer of mysticism from this subject and gave advice which, if followed, will secure a lien law for the garage owners of every state in the country. In part his suggestions are given:

This question of a lien law is more of a practical question than it is a legal question. Every one realizes there is no reason in the world why a man who expends energy and gives his time and labor and puts materials into the repair of a car should not be protected just the same as the man who feeds oats and hay to a horse.

Every artisan is protected by a lien law of some kind, except the artisan who happens to be employed by a garage owner.

There is no reason why the garage owner should not have his lien. There is no reason why we should discuss the law, as a law. You know you have a right to be protected for what you put into a car against the dishonest owner of a car, and because it is a vehicle that can be switched from one place to another and thus cheat you out of your money you should have a lien law.

The practical thing you want to know is that when you put your honest materials and labor in caring for or repairing a car that your customer will not beat you out of your money.

How to Get a Law Passed.

The great difficulty is that people have not had the requisite amount of experience in this kind of business. With them, getting a lien law passed would be very much like me trying to put my car together. While I do know what the wheels are, and the tires, I do not think I know anything about a car at all.

What you want to do to get a lien law passed is to try to learn the different things that actuate the members of the legislature in refusing to vote for a law which they know you are entitled to just as well as any other person that is protected by lien law. The mechanics' lien law of this state is one of the most complex laws ever put on the statute books of any state.

The great labor organizations can lay down any kind of law they have a mind to and go to the state capital and say that one hundred thousand members of the union want that law passed. They will say to one legislator: "You have 500 men in your district, and these 500 men want that law passed." Five hundred men in any district, 500 votes, will come very near defeating any man for office.

We have men like that in the legislature who are actuated by the thought that they want to go back to that legislature and they are going to listen to the voice of the organization in their district. Of course, a man may live in a district that is different. There never is any doubt about the result when a favor for a powerful organization is asked on behalf of that organization.

You will never get a lien law for garage

men in Illinois until you perfect an organization that will seek out the individual legislators, or enough of them, and make it to their interest or make it seem to their interest, to support you in this work.

Start Now.

You ought to start looking forward to the next legislature. Tabulate every man and find out who the people are who are necessary to him for re-election.

Then, if possible, get a measure in which the newspapers can be interested. That will put them on your side. It is easy to incorporate a provision that will appeal to the public. Some legislators vote as the newspapers tell them to. Legislators vote as their instructors tell them to vote. You know there is such a thing as turning the light of publicity on a man's life and you know the purpose and results of such illuminations.

Your law is not for the general good. It is special law dealing with the benefit of a limited class of people. The newspapers ridicule it and say the garage men take advantage of the public that goes into their places.

When the automobile was first put on the streets, garages were strung along the way, for you could not run a block without doing something to your car, and the men of those days did take advantage. That day has passed. Garage men today realize that they must deliver something to the customer, for he is wise enough to go where he can get service.

If you go to the newspapers with that proposition they will say the garage man wants to get a hold on the community like the plumber has.

Analyze Your Legislators.

The next thing you want to do is to analyze the position of every man in the legislature. They run all the way from the fellow who has a few men back of him to the other kind. Then there is the particularly sincere man who really does not understand the situation and needs someone to educate him on the needs of a business of this kind.

We all look at things from a different standpoint. A man who owns a garage has many things to think of. When you do something to him that interferes with the development of his business you will find him up and fighting. And so it is throughout the industry. All must be taken into consideration.

Protect All Interests.

You must draft a bill that will protect every man in the business. If you garage men get up your law without realizing that there are other elements of the business that must be taken care of, your law will not pass. Your law must protect the rights of every person that is entitled to be protected. It is one question to figure the thing out.

The garage man must do what will encourage the purchase of automobiles. Anything that would conflict with the manufacturing and sales departments of the automobile business by making it impossible to sell anyone or to buy a machine, except the buyer has a check to give for the full amount of the car, is a bad thing and will do its part toward making it impossible for you to secure your lien law. Each give a little and take a little.

(He referred briefly to the outcome of the last attempt to secure a lien law for Illinois, and to the activity of a certain down state legislator.)

I do not know of these things of my own personal knowledge, but the suggestion was made that a certain man in the legislature, who has a few fellows behind him whom he bosses, that you hire him to draw your next bill. I want to say this to you: The minute you do that you will find another fellow that will gather his little crowd behind him and suggest that you slip him a thousand to look over the bill the other fellow drew.

Do not wait until the legislature is in session. Find out what the controlling elements are in each district and then go out and get these elements lined up for you.

Protect the Public.

There are two or three little things you can do with reference to this bill. You can sprinkle in a provision that will make the public believe in it and have the public with you.

The average man will not bother about your troubles. He has enough of his own. Show him wherein he will be benefited and immediately he will cry, "I want that."

For example, offer him the protection of registration of every automobile that comes to your garages. It will tend to prevent theft. Let the car owner know that his car cannot be readily stolen, or if stolen, it may readily be traced by this system of registration, and you secure his aid.

The papers have been talking automobile thieves and automobile bandits. Put a clause in your bill that every garage owner is obliged to take down on a blank to be furnished by the state certain data with reference to every fellow that brings a car in. The car owner will see that is a good thing. The minute you do something of that kind you have caught the interest and support of the public.

You could exempt those drivers and car owners who are personally known to the garage man. This system is used in the east and permits cars being traced wherever they go. In a very few months it would not be possible to steal a car and get away with it as it is now. These are some of the things you must do.

Stop and think of the fellow who wants to sell a car with a mortgage on it. He must be protected. Get committees from every branch of your business. Get the manufacturer, the repair shop, the man who sells current, the garage man, the car salesman. Then, when you go to the legislature, every fellow in the business will be for law that you propose. Then hang something to the law whereby the public will become excited over the bill. If the public gets excited it will not say: "Pass the registration clause," but "Pass the bill." This idea that everyone is going to think the thing out is all bosh. People do not think about such things.

(In closing he compared the public's conception of any measure to the public's conception of the Monroe Doctrine, saying that very few people understood just what the Monroe Doctrine is and that internationally its provisions were not generally understood, but that Americans were willing to fight for the Monroe Doctrine.)

Measuring Up to Opportunity Merchandising by the Garage Man

"Your chauffeur is here. Says he wants to take the car down town to get chains put on. We sell the chain you want, so what's the use of burning gasoline to go down town for them?" the garage man was telephoning a customer.

"Oh, I didn't know you sold chains. What's your price?"

"Uh hu. Well, I'll telephone you later."

Later he telephoned: "Go ahead and put on the chains. I find you are right about the price and the chains, too."

Merchandising in the Garage.

In many garages far too little attention is given to selling anything except storage and time of employees. Interest appears to center in keeping the garage full, a necessary part of the work, and in reselling the time of employees.

Relatively little attention is given the problem of selling supplies, accessories and the thousand and one things the motorist needs and for which he is willing to pay the market price.

The customer who waits in a bleak garage room for his car, shifting uneasily from one foot to the other, thinks only of getting his car and getting away.

If, during this enforced wait, he was given opportunity to examine an attractive display of things he should have, things that would give him greater enjoyment from the use of his car, he would find the waiting less tiresome and the appeal of the tastefully displayed products would be greater than he could resist.

Someone Will Make the Sale.

Why not the garage owner? Why should the customer drive a mile or two to secure an article that he can get for the same price from the man who garages his car?

Why?

There is no reason other than that he has been accustomed to buy elsewhere.

He can be taught that it is greatly to his advantage to buy from the garage man, who, if he continues in business, must make a profit, and a part of whose profit should be derived from the sale of merchandise required by the motorist.

Cut Prices.

The automobile industry is not singular in that those who sell must meet price competition.

There is cut-throat competition among garages for the patronage of the car owner.

Wholesalers, jobbers, department stores and mail order institutions cry "Low Prices" to attract trade.

Prices of certain parts and accessories

are unreasonably high. These prices are maintained as a rule, but the competitive article of unknown name and origin are offered in competition, many times unfairly so.

Meeting Competition.

Why should a customer drive three miles to buy an article when he can secure the counterpart from his garage man merely by asking for it?

Why should he not buy where he elects? Price and goods are identical.

There is only one answer to such questions. That answer is to become a salesman, to watch the car, the customer, the market, to bring to the attention of the customer the advantage of keeping the car equipped with appliances of real use and value, to avoid loading the customer with unnecessary incumbrances—in a word, to serve as his counselor and friend.

Business—The Art of Serving.

Recently the Chicago Evening American printed a story of business by B. C. Forbes, of New York City, a part of which is given:

New York, March 1.—What is business? "To sell a man or a woman something he or she DOESN'T want—that's business. Likewise it's diplomacy." That was the definition given last Sunday by a prominent newspaper.

That is not the spirit of modern business. To foist on people things they didn't want or need used to be considered smart, clever business.

Modern business is the art of serving and satisfying.

To succeed a firm must satisfy. Thus are old customers retained and new customers attracted.

The bargain that is bad for the buyer is not good for the seller—unless he be a fly-by-night citizen.

Shyster methods may make a business man rich, but they will not keep him rich.

The late J. P. Morgan declared that credit was based on character. And that was true in a sense. Business—successful business—today is based on reputation, which is only another name for character.

Business implies doing things, not people.

Rob your patron and you hurt yourself more than you hurt him.

The greatest business men in America today regard all corporations as quasi-public service.

"The public is your master and ours. To succeed you must serve the public satisfactorily." That is the doctrine business leaders impress upon their subordinates.

Usefulness is the price of existence.

That truth applies to business as to men and other living things.

Whatever ceases to serve is doomed. Advertising, the torch that blazes the

business path, no longer seeks to mislead, but to lead.

Honest business calls for honest advertising.

Modern advertising seeks to aid, guide and serve the public, since thus, and thus only, can it serve the advertiser.

To be successful you have to be in business for the "health" of other people. If you don't serve them in some way, if you cannot make yourself and your wares useful to them, they will not serve you.

Those who build up colossal businesses do so by realizing and acting on the principle that they must do things for the "health"—that is, the well-being—of others.

You and I pay our money for being served in some way, for being catered to, for having our wants supplied or our fancies pleased.

We patronize those who serve us best.

It is the business of business to succeed in doing that.

Tricks and tactics designed to fool the public are gradually being discarded by responsible people.

Publicity aids honesty and annihilates dishonesty.

As publicity spreads, honest business will thrive and dishonest business shrivel.

Business founded on the principle of serving and satisfying has nothing to hide, nothing to fear.

Corporations tried to drive out all sentiment from business. They acted on the maxim that "business is business," and they defined business as something cruel, heartless, relentless.

And now these same corporations are moving heaven and earth to restore sentiment in their business, to inculcate and cultivate the loyalty of their employees and to win over public sentiment.

They want to be recognized as engaged in serving and satisfying.

Which, as was said at the start, is the aim and end of enlightened modern business.

STRAIGHT INFORMATION ON SELLING PISTON RINGS.

GARAGE EFFICIENCY is indebted to O. P. Hand, advertising manager of the Burd High Compression Ring Company, Rockford, Ill., for a story on how to sell piston rings. Mr. Hand has gone at this question in his accustomed, whole-hearted way and gives some very valuable information. He suggests:

"The question involves not only the merits of patented piston rings, which we assume you mean, but includes also various principles of merchandising which are comprehended in the sale of any article of high quality.

"It would be useless, of course, for the garage operator to urge the sale of patented piston rings if he were not con-

vinced that the old types of rings are admittedly inadequate.

"Appreciating the value of an improved piston ring, it should not require much argument on the part of the garage man to convince his customer that in order to secure maximum results and minimum upkeep an efficient piston ring is necessary.

The "Insides of the Engine."

"The writer's observations have been to the effect that the average car owner knows very little about the "insides" of his engine, and the minute he experiences trouble in that direction he goes to his repair man in the same frame of mind as the layman approaches his doctor, lawyer or other professional adviser.

"In other words, the car owner has a certain degree of confidence in the man who sets himself up as an expert garage operator. When his car has lost its compression; when he seems to lack power on the hills; when the speedometer fails to register as high as it formerly did with all the juice turned on; or when the traffic officers have commented on the amount of smoke emitted, Mr. Car Owner interviews the repair man in a confidential manner and remarks: 'The old boat don't seem to have the "pep" it used to, Bill. What do you suppose is the matter with her?'

"Bill knows, for he has seen many of her kind before. He knows that the old common rings that the car carries may have been partly efficient once upon a time, but that gas is slipping by the openings and the lubricating oil has been getting into the combustion chamber to such an extent that the motor is fairly carbonized from spark plug to the north end of the exhaust pipe, when she's headed south, and so Bill, if he is a good doctor, will recommend a day or two of rest and in the meantime a thorough cleaning out and as a tonic to keep off future attacks of the same kind a complete new outfit of *efficient* piston rings.

Effect of Carbon.

"Carbon, as most all car owners recognize, when told about it, is the root of all engine trouble. It comes about through the lubricating oil passing the slotted openings in the piston rings, or through the openings afforded by ill-fitting rings and being burned in the combustion chamber. Carbon thus formed lodges on the piston heads, cylinder walls, behind the rings and in almost every conceivable crevice. More or less of it—usually more—is drawn into the crank case where it mixes with the lubricating oil and being an abrasive of a nature similar to emery flour, grinds away at the vitals of the motor until something happens.

"Now, then, the majority of car owners are prejudiced to a greater or lesser degree on the merits of their own par-

ticular car. Time was when they could pass the best machine on the road and climb the steepest hill you ever read about on high. But the old boat don't seem quite up to snuff. 'Wonder what's the matter, Bill? Better give her the once over and let me know in the morning.'

"Here is Bill's chance to make a legitimate profit by putting in a new set of good rings and at the same time do his customer a bit of real service.

Piston Ring Replacement.

"Piston ring replacement usually comes about because of inadequacy of present equipment and unless the garage operator knows the whys and wherefores of the improved piston ring he cannot hope to make much of an impression.

"When overhauling work the tendency, when the case seems to require it, is to replace a broken or worn piston ring with a new common ring, just as one would a worn nut or bolt or screw and the profit realized in one case is just about as in the other, with the customer getting very little better service than before.

"Piston ring development has not kept pace with the advance in other motor parts and it is only recently that manufacturers have begun to realize the importance of the functions of this factor which has so much to do with the success or failure of the motor. They are now beginning to look around for something better than the common ring and a few have adopted certain rings as standard equipment for their 1916 product.

"If car manufacturers realize that the common ring is inadequate in a new car, how much more important, then, must it be to have an efficient ring in replacement work?

"The garage operator conducts his business for two purposes: First, to make money; second, to give service.

"Neither one of these objects may be accomplished unless he sells a quality article and gives quality service.

Selling a Service.

"A piston ring that will meet the present day requirements of automobile engineers is just as much an improvement over the old types as electric lights are over the carbide generators formerly used for lighting purposes. But until the garage owner realizes that in selling the improved ring he is not only selling an article that will make him more money, but also selling his customer a service that he never before enjoyed, he cannot hope for a very large increase in this particular line of his business.

"To summarize, it may be said that the reason the garage operator should sell the best piston ring possible is because his profits and his reputation as a mechanic require him to do so. His method

of selling should be first to determine which is the most efficient ring and then make it his business to tell his customers why he thinks so."

POSSIBLE PROFITS FROM SELLING MORE WONDER-MIST

"Confidence in the article, confidence in the house that makes it and confidence in himself are the great points. Demonstration comes next and closes the deal," declared E. M. Blake, vice-president of the Wonder-Mist Company, whose offices are in Chicago.

"Garage men should make it a point to talk about the goods they offer for sale to all car owners with whom they come in contact. They should do this diplomatically and not make nuisances of themselves. There are plenty of legitimate opportunities. In selling Wonder-Mist they should direct attention to the fine appearance of the cars they keep in order and emphasize the saving of labor and time.

"Owners who take care of their own cars are the big buyers of our product. They figure labor and cost of upkeep very closely.

"Owners who keep their cars in public garages prefer to have them cleaned with Wonder-Mist, for they want to get away from the disadvantages of soap and water. Cleaning cars with Wonder-Mist is a service which the car owner believes will protect his investment in the car.

In Daily Contact.

"Because the garage operator is in daily contact with his customers who own cars, his establishment is the logical one to sell this product. Garage men do not make money washing cars. It appeals to many as a source of revenue, but in the long run, according to the investigations we have made, there are few instances of actual profit.

"That fact that a garage man uses a product in his own work usually serves to convince the customer of the merit of that product. He has a following that will take his word for it on such matters and the appearance of the cars in the garage usually is sufficient to develop interest and bring about a sale.

The Value of Demonstration.

"Demonstration, we should say, is the fundamental principle of selling Wonder-Mist. Garage owners can afford to take the time to make these demonstrations because the profit on a sale is greater than can be made by mechanical work or derived from the sale of many other kinds of accessories. Repeat orders should be taken into account, for they require little time or effort.

"We are helping the garage man in his sales, supplying folders which may be mailed to patrons with monthly state-

ments or sent out in general correspondence. These folders create interest, start inquiry, and give the garage man opportunity to explain and demonstrate the goods.

"As I have said before, demonstrations are convincing. The fact that it removes mud, grease and tar without scratching or injuring the finish and that the appearance of the car is excellent after the application establishes confidence and gets the order.

"Also, we furnish large cards for window displays, which serve to center attention in the product.

"In selling Wonder-Mist or any other product, keep after the business. No set formula will serve for all. Garage men should endeavor to work out a method of procedure that suits the individual and meets his needs. Above everything else, however, he should educate his customers to rely on him for materials he buys and uses."

THE PROBLEM OF LUBRICATION

It is said that if a certain kind of oil was used to lubricate the spindles in a silk mill not only the spindles but the engine itself would be stopped by the tremendous addition to the load. Using another kind of oil would reduce the load 25 percent below normal.

That is a vivid illustration of the importance of proper lubrication.

In an automobile the lubricant, regardless of its value or character, cannot render the machine inoperative. A car lubricated with the most inferior oil on the market can start, go ahead, turn around, move backward or roll over, but the result of every action of every bearing in the car is vitally affected by the quality of the lubricant employed.

Lubricating Oil Not a Chemical.

GARAGE EFFICIENCY was the first paper to point out the forthcoming shortage of gasoline, due to the demand increasing faster than the supply, and in connection with its first article on that subject took occasion to point out that gasoline is not a chemical but a product of crude petroleum.

Lubricating oils are other products of petroleum. They are the heavier oils that come off after gasoline and kerosene have been distilled. Some of these oils are very light and are valuable for lubricating a sewing machine. Others are very heavy and take on the form of a solid under normal temperature, being suitable and also being used for the lubrication of bearings in wagons, etc.

At some point between the light sewing machine oil, assuming that such oil may be secured from petroleum, and axle grease, is the lubricant that should be employed in automobiles.

Lubricating the Automobile.

Garage men and supply stations are supplying the bulk of the oil used in lubricating automobiles. The cost per pound, for grease, or per gallon, for oil, has nothing to do with the cost of lubricating a car.

Other factors of lubrication are of vastly greater importance. The cost of lubrication should be figured on a mileage basis, due consideration being given to the condition of the mechanism, that is, the wear and tear resulting from use.

In the ordinary factory close attention is given the subject of lubrication. Cost is figured on a basis of results. Competent engineering talent is employed to determine the lubricating needs of the company and to see that they are supplied.

In a factory many of the bearings are open and subject to close examination. In an automobile the bearings are housed in a manner that effectively prevents observation.

Buying and Selling Oil.

Every producer and distributor of oil offers the "very best value for the money." These oils vary in price and in value. The garage man who handles oil must be the judge and must differentiate between the cost and value of the many kinds of oil offered by the many companies engaged in the business.

How is he to do it?

In the offhand way in which business is conducted in America it is possible for that garage operator to continue to buy oil and continue to parcel it out to his customers at a profit, without giving the question much thought.

Unless he has absolute assurance of the quality of the products he handles he may make money without performing the service modern business demands of him.

A Source of Lubricating Information.

Recently a copy of "Correct Lubrication," issued by the Viscosity Oil Company, of Chicago, reached this office.

A statement made therein arrested attention. It proclaims: "When our representative calls for the first time, or in answer to your request, he does not come as an 'order taker'—just to sell you oil—but if possible to better your lubricating conditions, to make more efficient the operation of your machinery and to save you money."

This was promising and led to an investigation in the course of which W. B. Simmons, president of the company, gave the investigator much information respecting lubrication, a part of which is here reproduced:

This company is a compounder of lubricating oils for the many purposes for which lubricating oils are required. In determining the character of oil most

suitable for lubrication of automobiles various oils were tested.

An oil of suitable viscosity was selected. It was put into an automobile and the car run fifty miles. A sample was taken off and analyzed, another sample at 100 miles, another at 150, etc.

Some of the oils which seemingly were suitable for this use were found to break down under the high temperature and excessive use. Others which appeared less desirable proved themselves better lubricants for the motorist.

This company is a compounder of oils, drawing its supplies from the several fields, largely the eastern, testing them and discarding all that tests show contain tar, acid, etc., and employing others in the compounding of oils for lubricating purposes.

By this arrangement the company is able to furnish any grade of oil a user may desire. One of the fights the company has been forced to make has been to prevent the use of unsuitable oils. This has not been true of the large consumer, but has been true of some garage men who buy to resell.

"Correct Lubrication" is worth while to anyone in any manner interested in the subject.

CARRY STOCKS AND MATERIALS YOUR CUSTOMERS MUST HAVE

CHICAGO, ILL.—Editor GARAGE EFFICIENCY: Every garage operator with forty or fifty boarders is entitled to sell those boarders every dollar's worth of material required for the satisfactory operation of the cars and this can be done only by carrying in stocks the good that are wanted.

If the garage owner does not carry the stock the car owner is compelled to shop around, and there never was an article made on which somebody did not have a lower price than the other fellow.

The trouble with the garage man today is that he does not carry sufficient stock to take care of the trade, or, the stock he does carry is tucked away in a dirty, dusty, dark corner where nobody can see it and the owner does not know himself whether he has what is wanted until he looks.

There is only one way a garage man can sell more Empire tires and that is by carrying a stock in his garage and having that stock so arranged that his customers will see the tires every time he comes in.

If a garage man will stock Empire Red Automobile Tires and *have the tires out where his customer can see them*, he will be able to sell these tires to every customer desiring a good tire. The other fellow will buy seconds.

E. B. McKAY,
Manager Empire Rubber & Tire Co.

Making a Business Success Of a Successful Business

A great many business houses make a financial success, that is, they make money. Relatively few concerns make a business success, by making friends and making better business for their friends who are their customers.

Better business, better service, men who are on their toes to perform their share of the world's work in a manner that in every respect is pleasing as well as satisfactory, is the keynote of modern commerce.

M. E. Faber, advertising manager of

New Year's resolution to talk "sell accessories" to every dealer from now on. Let's do more than that—let's show these dealers how to sell accessories.

Show them that their windows are good for something besides illumination—that their offices are too valuable to use for a local "Tammany Hall" of dirty loafers that drive away self-respecting trade. We can put in a window display now and then while we're waiting for a train, suggest a show case re-arrangement, or a mailing of some of the accessory literature that every manufacturer is anxious to supply. We can pick up good ideas in every town and carry them along to the next. For a

THE STORY OF A SUCCESSFUL BUSINESS.

BY ROBERT B. DUNLAP.

The story of Shaler vulcanizers is a story of merchandising through advertising service. Clarence A. Shaler, the originator and inventor of the electric vulcanizer, was the second man in the state of Wisconsin to own an automobile. He made the first Shaler vulcanizer in the fall of 1905, not on account of its sales possibilities, but because he had become dis-



M. E. Faber, Advertising Manager.



C. A. Shaler, Founder.



R. B. Dunlap, Manager.

DIRECTORS OF THE POLICY OF MAKING A BUSINESS SUCCESS OF THE C. A. SHALER CO., WAUPUN, WIS.

the C. A. Shaler Company, Waupun, Wis., sent to several thousand auto supply salesmen a letter that the garage owner and car dealer should read once each day until it has been committed to memory.

This letter is so direct and to the point, so in keeping with the spirit of the times, that it is reproduced here in full with the recommendation that it be clipped, framed and protected by glass, and placed face up on every desk:

WAUPUN, WIS., U. S. A.

Dear Sir: Nineteen-sixteen is going to be a record-breaker in the auto supply business. That's what dozens of salesmen have told me during the past few weeks.

But we've got to do something more than say so to make this prediction come true.

Let's surprise our dealers by giving them a new kind of service. They're used to having us tell them about prompt shipments, the big stocks we carry, personal attention to their orders, and all that bunk.

The kind of service the dealer needs most today is a little education in selling methods. He's too busy with the back end of his garage to realize that the front end can just as well be making money for him.

Let's you and I and the thousands of other salesmen who read this swear a

starter read the enclosed story of how one dealer is doing it—and pass the idea on.

It's up to us to jerk these dealers out of their rut before they wake up some day and find that somebody else—the drug store or the ten cent store—has cornered the accessory business.

Now if all of us will get together on this plan every dealer is going to have "be a merchant" shot at him at least once a day. If he's an ordinary man he'll get in line before long. He'll make more money, his credit will be better, we'll sell him accessories to sell instead of just the equipment he needs to use, and our prophecy for 1916 will make good.

I'd like to have a vote on this proposition. If it looks good to you, put your John Hancock on the postcard and start it to

Yours for more business,
C. A. SHALER COMPANY,
M. E. Faber, Advertising Manager.

While the purpose of the letter is to get more business that outcome can be assured only by spurring the dealer and garage man to greater effort and keener appreciation and use of their opportunities.

This is the spirit the organized garage and car dealers have pledged themselves to support. It is the modern, progressive business spirit and it wins every time.

gusted from the service he was getting from the tires on his car.

Before he started work on this vulcanizer he tried every device then on the market, but found them all unsatisfactory. He then turned his attention to the invention of a practical vulcanizer and after many months of investigation and experimenting produced the first Shaler vulcanizer. Crude as the device was at that time, it made perfect tire repairs.

Mr. Shaler and his motoring friends who tried the machine found that by keeping the cuts in the casing of their tires vulcanized sand, dirt and water could not get in, which prevented it from getting to the fabric and that prevented 90 percent of their blow-outs. When they did pick up a nail or run over a piece of glass the inner tube was quickly and permanently repaired at no greater cost than that of the application of an undesirable cement patch.

So many of Mr. Shaler's friends spread the news that he soon received requests from motorists in surrounding communities for an outfit similar to the one he was using and started the first factory

in his 15x25 foot shop, where he did all the work himself.

An investigation of the surrounding cities and towns to ascertain how large a percentage of automobile owners and garages would be interested in an economical and sure method of tire repairing demonstrated that there was an extensive demand for such a machine. The result was that inside of ten months a portion of a local factory—this time a real factory—was rented and a company formed to carry on the manufacture and sale of vulcanizers.

Since that time the growth has been phenomenal and today the C. A. Shaler Company is one of the leading manufacturers of automobile accessories in the United States, with a large modern plant fully equipped and its product is known and used throughout the entire world.

The complete Shaler line comprises vulcanizers of every type—electric, steam and gasoline, from the small portable outfit to be carried in the motorist's tool box to the complete garage equipment with automatic temperature control.

The Shaler company is contractor for the United States government, sixty-four motor car manufacturers, sixteen tire

manufacturers, municipal police and fire departments, taxicab companies, department stores, breweries, laundries, manufacturers, public delivery companies and public and private garages throughout the world.

In the last Ajax tire contest it developed that practically every prize winner attributed his additional tire mileage to the use of a Shaler vulcanizer.

The Goodyear company recognizes that by taking care of one's tires their service and satisfaction may be increased manyfold. Every Goodyear branch carries Shaler vulcanizers in stock and urges its customers to prevent tire trouble by keeping their tires in perfect condition on the old theory that "An ounce of prevention is worth a pound of cure."

The remarkable growth of the Shaler company has been due to the fact that it rendered motorists a real service and enabled them to triple the mileage and reduce their tire expense.

By devoting a half hour to the care of his tires every two weeks with the Shaler vulcanizer every motorist can cut down his annual tire bills to an extent that will surprise him.

And yet, in the face of the fact that

tire expense represents 90 percent of the cost of operating a car, many motorists who pay strict attention to the care of their engine, carburetor and other mechanical features of their cars let the tires take care of themselves, not realizing that by keeping their tires in good condition with a Shaler vulcanizer they can save two-thirds of their tire expense.

Mr. Shaler's latest invention is a complete electric vulcanizing plant heated from the city lighting current, designed especially for use in garages, which complies with all requirements of garage regulations.

The electric heat is perfectly safe and has automatic heat control. Other advantages of this vulcanizing plant heating electrically are its simplicity, portability, quick heating and the fact that every unit may be purchased separately and attached to any work bench or table and used for its own particular kind of work.

The new Shaler electric garage vulcanizing plant attracted a great deal of attention at both the New York and Chicago Automobile shows and is being installed in many of the best garages, not only in the United States, but in foreign countries as well.

Methods Cleaning and Preserving Concrete Floors in the Garage

Getting rid of oil and grease on the garage floor has always been and will continue to be a troublesome problem for the garage operator. So much interest has been expressed in this subject that GARAGE EFFICIENCY sought the aid of the engineering staff of one of the largest paint manufacturers with the request that a remedy be suggested.

This concern, it is understood, make a preparation for painting concrete floors, rendering it as easy to remove oil from the surface as from enameled ware, or almost.

TREATMENT OF CONCRETE FLOORS IN THE GARAGE.

Considering the rather severe conditions prevailing in garages, particularly the floors, it is necessary that paint materials considered for use thereon be especially formulated for each purpose in order to net satisfactory results.

Considering first the treatment of floors from the standpoint of garages as large, or larger than the average, it is absolutely necessary to coat the floor to preserve it. Lubricating oils and greases get into the concrete and act as a lubricant for the particles of sand, cement, etc., making it comparatively easy for the surface to break down or pulverize with the weight of heavy trucks, cars, etc., that continually pass over it, and in cases of

upper floors, or those not laid on the ground, the supporting strength of the floor is considerably weakened.

It is, of course, practically impossible to thoroughly clean an untreated floor free from oils and greases. Whereas gasoline does clean up the surplus on the surface, it acts as a diluent and really aids some of the oil and grease to penetrate further into the floor.

In addition to being a detriment to the concrete, oils and grease upon the floor are very unsightly, and have a deteriorating effect upon tires and in addition have been the causes of law suits due to the soiling of garments.

It would seem, therefore, that something must be applied to the floor which would not only prevent the deteriorations mentioned above, but would be so formulated as to comply with the usual conditions found which are usually rather severe, as well as give satisfactory results when the unsatisfactory conditions are not present.

On account of the fact that linseed and other oxidizing oils used to excess tend to also act as a lubricant for the concrete particles, it should be plainly evident that lead in oil and other ordinary oil paints are not satisfactory. It is absolutely necessary to have liberal quantities of properly selected, hard gum present in

the vehicle. This hard gum must, of course, be properly fused with the proper oil at the right temperature in order to get the right kind of a film. After the liquid is completed and properly aged it should be incorporated with both lead and zinc, either one alone is not entirely satisfactory, nor is lithophone, the latter being known as combination of zinc sulphide and barium sulphate. This pigment is used considerably in some widely advertised garage floor coatings, however, it is not satisfactory and its principal weakness is that it does not add the same strength to the film that is secured by the use of a mixture of lead and zinc oxide.

A cement floor coating properly put together in accordance with the foregoing will have the necessary penetration to enable it to get a proper bond, and on application of the second coat will produce a very smooth surface, tough, tenacious, oil and grease proof and easily cleaned.

In order to properly proportion the coating for the finishing coat it is best to thin the first coat with about one pint of turpentine to the gallon of paint.

CONCRETE FLOOR TROUBLES AND HOW TO PREVENT THEM

The foregoing information applies to floors already laid and in service that

have not begun to go back and are not so thoroughly oil soaked to make the treatment inoperative.

To the man building a garage the advice here given, furnished by one of the foremost engineers in the country, should be worth a very great deal in future satisfaction and saving:

Like any other material concrete, for best results, must be used in accordance with well known requirements, which if observed are certain to lead to success. There are probably many more unsatisfactory concrete floors in existence than there are concrete floors which are giving the satisfaction that may be expected from the material if used rightly. The trouble lies largely in the fact that every one thinks he knows best, or that this or the other essential can be overlooked if all of the others are observed. Here is where the trouble lies. Every proved fundamental of concrete floor construction is important.

It goes without saying that concrete is the best material for a garage floor, yet like any other material, concrete cannot be made to do everything, nor to give every desired result in every particular usage to which it may be put.

Concrete floors properly laid will have a surface that to all intents and purposes is impermeable. This does not mean, however, that such floors will not take on stain from the oils and greases which are a necessary adjunct of motor car maintenance. Any floor will take on stain as a result of being subjected to the treatment which a garage floor receives.

Many persons have the erroneous impression that the oil is harmful to concrete and causes its disintegration. This is true only when the concrete is of such a porous nature that oils are readily absorbed; and due to this very porous nature of concrete, which is entirely the result of improper proportioning of materials and neglect to observe the requirements of hardening the floors perfectly before putting into use, the various particles of sand and stone, or pebbles, that are used in mixing the concrete are not thoroughly coated with cement, hence the floor does appear to disintegrate.

Porous concrete, due either to improper hardening or to using a mixture containing too little cement and poorly graded materials, will not withstand wear.

If concrete used in floor construction is correctly proportioned from well cleaned materials, placed at the right consistency, properly finished and protected while hardening, the surface exposed to traffic or use will be so dense that wear will be little if the materials used were hard; then such staining as there may be will be purely surface discoloration. This can almost entirely be removed by

scrubbing the floor with a hot, weak lye solution.

Probably the garage floor can be made less subject to staining by grinding the surface after thoroughly hardened so that the aggregate (broken stone chips) would be exposed in the same manner as in terrazzo floor construction. Such treatment, of course, adds slightly to the expense, but appearance is improved; and if the broken stone used in the concrete mixture is hard and dense, such as granite chips, there will be relatively little discoloration that cannot be removed by occasional washing with the lye solution suggested.

Various paint manufacturers offer paints that are prepared with the special object in view of using them on concrete surfaces. It should be remembered that only a special paint can be successfully applied to concrete, because there are present in the concrete free alkali, which must in some way be neutralized to prevent them from entirely destroying the oil base of common paints. Also that any concrete surface before any paint is applied to it must have become thoroughly dry; otherwise the paint will soon peel off, in fact may peel off during the first few hours while the paint is drying.

There seems to be no reason for taking exception to the slight stain that any garage floor must acquire through the nature of the use to which it is constantly put. A commercial garage is more or less of a work shop and no work shop can be perpetually maintained in the order and cleanliness of a drawing room. It is well, however, to at once dispel from our minds the notion that concrete is not adapted to almost any and every type of floor construction.

Aggregates should be selected with a view to securing maximum resistance to wear, considering the traffic or use to which the floor is to be subjected. Any well known brand of Portland cement meeting with so-called specification requirements will do, so the choice of cement is a simple matter.

Sand and pebbles or broken stone, however, which are to be used with the cement to form the concrete mixture require careful selection; they must be hard and tough, clean and well graded. Sand is usually referred to as that material which will pass a screen having $\frac{1}{4}$ -inch openings and graded from this dimension downward to the finest permissible particles, excluding material that would naturally be considered as dust. Broken stone or pebbles used in concrete are referred to as the coarse aggregate. These should be free from soft or elongated particles, and particularly free from clay coating or dust on the surface which would prevent the cement-sand mortar from firmly bonding all together.

In most interior floor construction two-course work is used; that is, a base of

somewhat leaner mixture than the top is first placed and immediately thereafter the wearing course is applied, struck off and finished.

It is of prime importance that the right amount of water shall be used in concrete floor mixture, to make it possible to do the necessary final finishing before the concrete has commenced to harden. If after hardening is under way several trowelings are necessary to secure the desired surface, this disturbing of the process of hardening, due to the setting of the cement, interferes with the chemical action taking place owing to the presence of moisture (water) in combining with the cement and crystallization is disturbed and the wearing qualities considerably impaired.

The bottom course should be mixed to nearly a quaky consistency, and the top course should be mixed stiffer so that it will be necessary to scrape the concrete mixture from the wheelbarrow. If this is done, final finishing can be performed within twenty minutes after troweling off the top course and one troweling will be all that is necessary. A wood float finish is preferable to that secured by a steel trowel, because the tendency when using a steel trowel is to over-trowel, thus bringing too much cement to the surface.

After the floor has been finished and a protective covering of moist sawdust or sand can be applied without injuring the surface, this should be at once spread over the concrete and be kept moist for ten days or two weeks, so that the concrete will thoroughly and properly harden.

The very best of concrete can be made worthless by allowing it to dry out instead of harden, and for the latter moisture is necessary.

NEW USE FOR GARAGES.

DES MOINES, IOWA.—Dr. Carrie Harvison Dickey of Cambridge and Miss Mabel Lodge, state organizer, will start out this morning at 6:30 o'clock to post suffrage signs up and down the River-to-River and White Pole roads between Des Moines and Council Bluffs.

In addition they propose to post suffrage signs in the garages along the way. Dr. Dickey, formerly of Des Moines, and a bride of a few months, has undertaken the task of posting the four highways of the state with indestructible suffrage signs. The signs read "Vote yes on the suffrage amendment June 5." The signs are of metal and are 2 by 3 feet.

Posting metal suffrage signs to wire fences in cold weather is no sinecure job for a woman. The signs are attached to the fence wires by metal clasps and pliers are used.

Dr. Dickey expects to have all of the signs posted before Jan. 1. She will be gone two days on the first sign posting trip. There are 2,500 metal signs to be posted.

Combining Gas and Electric Power For the Operation of an Automobile

Perpetual motion may be as far from attainment as ever it was but a combination of ideas, gasoline and electricity has placed at the command of the careful driver an acceptable substitute. That fact has been established by the many tests made with the Woods new dual motor vehicle.

This car, as yet unnamed, is designed to employ alternately or in combination, gas and electric power.

Starting, the car moves away with the smooth, easy glide of the electric, without vibration or noise. Once under way the journey may be continued with electric power or a change may be made from electric to gas power by manipulation of the controllers on the steering wheel.

That, in brief, is the story of the new Woods car, embracing the results of nearly twenty years' development and improvement of the power propelled vehicle.

Combination Power.

After the first one lunker had been patiently towed back to the starting point and safely tucked away, pending its next appearance before an amazed and disbelieving public, mechanical genius set to work to make the "contraption" worth while.

The early success, partial though it was, with the gasoline motor, led to the adoption of electricity. During the period given over to the upbuilding of the power vehicle, from its embryonic to its practical stage, engineering talent has endeavored to raise both forms of power to their *nth* degree.

It was logical, therefore, that viewing the situation calmly Master Engineer Feud, of the Woods Motor Vehicle Company, Chicago, Ill., should sidestep the question of which is the best form of power and design a car in which the merits and advantages of both gas and electricity would be retained by employing them alternately or in combination.

The outcome of that commonsense view was the Woods new product, a modern car with beautiful streamlike lines, 110 inch wheel base, equipped gas motor and storage batteries, and able to use either or both at the option of the driver.

How the Car Is Operated.

The new Woods car is almost as simply operated as the ordinary electric. There is an absence of clutches, reversing rigs, gears, acceleration and other attention distracting impedimenta of operation.

In appearance the new car is not unlike the finest electric the Woods company ever built, with a refined gas car

hood that harmonizes with its coachwork lines and a rear design that gives the effect of the shelter for the batteries, but which is made to conceal the spare wheel and tire that makes for luxury in operation. The engine that, in conjunction with the regular electric car motor and generator, cuts the battery weight more than 600 pounds and eliminates charging plants and all annoyances about having enough "juice" to make a trip develops a maximum of 14 horse power under the best of conditions.

Back of the simple clutch, which is magnetically energized when needed, the car practically is the same as in the regular electric car models—in front there is the gasoline motor. The engine is absolutely "unstallable," because the shaft from the generator and motor constantly is working against the compression of the gas engine, which has a small bore and stroke. The car starts as an electric, and at will, according to the little pointer on the instrument on the dash, the driver may recharge the batteries or run the car as a gasoline machine by the simplest move of a lever on the steering column. Electric energy used from the battery may be returned to the battery with the car running at any speed from five miles an hour to thirty-five.

Low Cost of Operation.

Designers of this car have perfected and placed at the command of the autoist a car combining the merits and advantages of both the electric and the gas engine propelled vehicle.

One idea was to make the operator independent of the charging station. With that idea was combined the thought of reducing the cost of operation and giving the owner ample and uniform power.

In practice it has been found that a gallon of gasoline is sufficient to furnish power for thirty-eight miles of travel, plus the aid the batteries give. It should be borne in mind, however, that there is no cost for "juice," the batteries being automatically recharged by the motor.

Depreciation in batteries is reduced to a minimum by keeping the charge at 25 to 75 percent at all times. If batteries are charged in excess of 75 percent "gassing" may result, if the charge falls below 25 percent depreciation sets in through the formation of destructive acid.

On the front of the car is a dial showing the extent of the charge in the batteries. White means the batteries are safe from deterioration from any cause, the red indicating that electric power

should be used or electricity supplied by operating the motor.

A twenty-four cell battery is employed and this battery should serve indefinitely, because it should never be under or overcharged and therefore never subject to conditions that bring about deterioration.

Garaging the New Woods.

The Woods "electric-gas" probably will be garaged as a gasoline car. There will be no charging necessary if the driver exercises ordinary care in operating the vehicle. The car will use about half as much gasoline as the ordinary motor and will charge its own batteries.

Garaging will comprise storage, washing and polishing and lubrication.

Summarized.

Summarizing the achievement "sought by all engineers, desired by all owners and now a reality," it is suggested that you picture an automobile with all the refinements and simplicity of the most luxuriously appointed electric, then call to mind all the advantages in any other car, retain the mechanical perfections of both, eliminate their deficiencies, combine their advantages, add unlimited mileage, 40 percent greater speed than any electric, automatic acceleration, finger control of starting and stopping, instant change to an unlimited number of speeds without gears, clutches or other complicated mechanism and you will have a fair idea of what the New Woods intends to give its operators.

One Thousand Speeds.

The speed is regulated, as stated, by finger control. Moving the control ever so slightly increases or decreased the speed. At a very low calculation there probably are one thousand different speeds at which the car may be driven, and maximum or minimum are available by a movement of the finger.

That unsightly fifth wheel or spare tire is not in evidence in the appearance of this car. The rear compartment, ordinarily occupied by batteries, is utilized to provide a home for the extra equipment.

GARAGE MEN ORGANIZING.

MILWAUKEE, WIS.—At a smoker held by garage men of the north side Wednesday night in the Power-Engineering Company, Second street and North avenue, a movement was started with the object of getting better acquainted with neighboring garage men, the fostering of good fellowship and the forming of a state-wide garage association. The officers: President, W. Soerens; vice-president, H. Bruhy; secretary and treasurer, J. Thor.

Garage Accounting

[A Monthly Feature Prepared by Horace Edward Hollister, Rockford, Ill.]

How to Check Up Your Accounting System.

Is my accounting system efficient? Is it productive or non-productive? Am I getting the results from it that I am paying for, and have a right to expect? How can I know? And how can I be sure that any system of accounting offered me is an improvement on my present one, and will really be what I want, and justify the trouble and expense of making the change?

These questions are troubling the minds of many garage men at this time; and it is the purpose of this article to suggest a basis for judging any system of accounting, whether the one now in use, or the one under investigation, with a view to possible adoption.

The accounting system is to be judged on the same basis as are other matters pertaining to business—by the results accomplished, the finished product. It is strangely true that many business men seemingly maintain an accounting system for no other reason than that it is fashionable, or because they inherited it from their predecessors. It may also be that some bookkeepers, from long performance of the motions, mental and physical, that are necessary to "holding their jobs," have become addicted to the habit, and would continue the exercise of these functions for the sake of the vague and moribund pleasure derived therefrom, even though convinced that no other object was to be gained.

But we conceive that most business men would like to place their accounting systems on a truly productive business basis if they knew how; and that most bookkeepers would rather find time to go fishing or to see the movies than to spend all their time hunting for lost balances and in getting out statements. Hence we believe that a practical basis for analyzing an accounting system, to determine just what worth-while results are actually being obtained, will prove interesting to both the proprietor and the bookkeeper.

Positive and Negative Results in Accounting.

There are two kinds of results to be looked for from any accounting system, viz: positive and negative. Unfortunately the negative results are the ones usually emphasized and striven for by the average business man and bookkeeper; while the positive results are either relegated to second place or absolutely ignored. To this fact is largely due the sensations of weariness and pain that afflict the said average business man whenever he takes

time to sit down and contemplate his alleged accounting system.

Another point to be considered in our investigation of the merits and demerits of a system is its relative ease and economy of operation; its simplicity or complexity; the number of books and forms used and the time required to keep the various records composing it. But "simplicity" should not be the *prime* consideration; this point should only be regarded in relation to the amount of information supplied by the system. In words two thousand years old, "There is no excellence without labor." The *best* system is necessarily more complicated than the *simplest* system. It would, of course, be most simple not to keep any records at all; or, if any accounts are to be kept, the easiest and simplest method would be to write the records of the transactions down, one after the other as they occur, in an ordinary note book, after the manner of the old-fashioned "day-book." Between this extreme and the other, that involves the maintenance of an elaborate system requiring an excessive amount of help to operate it, and producing results in the way of information so minute and voluminous as to be of little or no value to the executive to whom it is submitted—between these two extremes lies the happy medium in each particular case, and the question boils down to this: First, the information required; second (and always second), how to get it in the easiest and most economical manner.

It is suggested, then, that the accounting system under analysis be examined under the three general headings, (I) Positive Results Obtained, (II) Negative Results Obtained, (III) Economy of Operation. The system should further be examined under each of the subheadings named below, to decide to what extent each point is covered.

(I) POSITIVE RESULTS OBTAINED.

- (a) Periodical complete and accurate information regarding the assets of the business.
- (b) Periodical accurate and complete information regarding the liabilities of the business.
- (c) Periodical accurate and complete information regarding the volume and results of the operations of the business.

We are firmly of the opinion that every business man should be informed, at the close of every month, of the exact extent of each item of his assets, liabilities, and net worth; how much he owes

and how much is owed him; what his sales, expenses and profits were for the preceding month; how much capital he has to work with, and how quickly available it is in the form of liquid assets. This detailed information should be placed before him in such form as to be readily compared, item by item, with the same information at the close of the preceding month, so that he can clearly discern the upward or downward trend of his business. The monthly report of the result of operations should include the proper proportion of the prepaid and accruing future due expenses, such as insurance, taxes, depreciation, interest, etc.

Moreover, in a business such as the automobile agency and garage business, involving a number of quite dissimilar departments operated together, it is highly important that this information regarding the results of operations be obtained for each department separately. If this information is available monthly it enables the executive to guide his course accordingly; to push this department, and put a brake on that; to stop a leak here and to take in said there; to apply a stimulant in the way of increased advertising or attention to a weak department, or to prune out an excessive expense in another—in a manner absolutely impossible when this information is only available at the end of the fiscal year, if at all.

The accounting system that does not supply these positive results—this essential information—is unworthy of the name; it is practically worthless and should be immediately replaced by one that does supply this information.

(II) NEGATIVE RESULTS OBTAINED:

- (a) Prevention of loss on sales, by insuring that for every item sold, of merchandise or labor, an equivalent is received in money, or the proper charge is made to the customer.
- (b) Prevention of loss on purchases, by making certain that all goods paid for have actually been received, and that invoices from creditors are figured correctly at the right prices, and are not duplicated.
- (c) Prevention of losses through employees, by providing a check on each employee's honesty as regards his own time, or the materials or money handled for his employer in the discharge of his duties.
- (d) Prevention of loss through the

elapse of time, either by delay in making charges to customers, thus causing a direct loss by reason of failing to make collections that otherwise would be good; or an indirect loss through failure to pay bills within the discount period; or loss through delay in obtaining the information that the accounting system is designed to supply, so that information is not so valuable to the executive for his guidance in conducting the business as it would have been if it had been obtained promptly.

- (e) Safeguarding against loss as a result of accident or calamity; for instance, as so often happens, money lost in settling with underwriters after a fire, because imperfect stock records were kept and the actual amount of the loss could not therefore be obtained from the records.

(III) ECONOMY OF OPERATION.

- (a) In the making of the primary memorandum of transactions by the employee who actually does the work.
- (b) In the journalizing or sorting of records of transactions in preparation for posting to the permanent records.
- (c) In posting or passing the journal entries covering operations to their final recording in the ledgers.
- (d) In the preparation of the statements of operations for presentation to those for whose information the records are maintained; that is of customers' accounts to the customers and of the reports outlined in Section (I) rendered to the manager or proprietor of the business.

Concerning the question of economy of operation the reader is referred to the article in the January Accounting Department of this journal under the caption "Complex Simplicity." It is important that the forms or methods provided for the primary records be designed to obtain the greatest possible amount of detail with the least amount of work on the part of the employee entering the charge. The most important consideration in connection with journalizing is to so arrange the journal form or forms as to distribute as much as possible of the month's entries in columns corresponding with the most active general ledger accounts so that the totals only need be posted at the end of the month instead of each item separately. The system if efficient will also provide for the producing of the bills or statements for customers at the same time that the journal or ledger record of transaction is made by means of the

duplicate billing or statement method.

The time is rapidly coming when the successful garage man must give as much thought to the internal mechanism of his accounting system as he does to the insides of the automobile that he sells, cares for and repairs. The evolutionary

process, operating in the industry, will unfailingly eliminate those who cannot or will not adopt the methods of business system and efficiency which have spelled success in every line of human endeavor.

HORACE EDWARD HOLLISTER.

Accounting Contest

GARAGE EFFICIENCY takes considerable satisfaction in the fact that a year ago it recognized *better accounting* as one of the paramount needs of the retail automobile and garage business and commenced a department of Garage Accounting. We believe that we are justified in thinking that our efforts in this connection are to some extent at least, responsible for the present wide-spread and active interest in the subject on the part of garage men generally.

To learn new and better methods of keeping the record of their business operations is now the desire of almost all progressive automobile men. Better methods do not necessarily mean more books, a more intricate system, more bookkeeping labor. Better accounting means more accurate accounting; but it also means the greatest economy of time and labor.

It is our opinion that no one garage in this country has the "best accounting system" in every particular. It is unquestionably true that numbers of garages have very fine accounting systems, which, if they were available for all garage men, would be of the greatest benefit to those who made use of them individually and to the trade in general. One system may be strong in one particular or department, and weak in another; and to discover the best methods in *each department* of automobile garage accounting, and to present these methods to the trade generally, so that they shall be available for wide-spread adoption, is a task to which GARAGE EFFICIENCY has set itself.

In order to accomplish this we have decided to inaugurate a contest, and offer prizes for the best systems of *Garage Accounting* presented to us for publication within the next ninety days. The contributions submitted will be judged on the basis of points as follows:

	Points
(1) Purchase Order, Recording and Paying System.....	10
(2) Stock Record and Inventory System	10
(3) Original Charge Forms—Methods for Making Time and Material Charges.....	15
(4) Billing and Charging to Customers—i. e., Accounts Receivable Billing and Record Methods	15
(5) Sales Classification and Method of Distribution.....	10

(6) Cash Records and Handling of Cash	10
(7) General Ledger Accounts and Classification	10
(8) Payroll System—Employees' Time and Labor Distribution Accounts	5
(9) Bookkeeper's Daily and Monthly Statements and Reports to the Management.....	15

Total

100
Horace E. Hollister, Editor of the Accounting Department of GARAGE EFFICIENCY, will be one of the judges of this contest, and two others in no way connected with GARAGE EFFICIENCY will act with Mr. Hollister. Their names will be announced next month.

For the best papers submitted on Automobile Sales Agency and Garage Accounting, outlining a complete system, and marked on the above basis, GARAGE EFFICIENCY offers the following prizes:

First Prize	\$25.00
Second Prize	15.00
Third Prize	5.00

For the best outline of methods submitted under each of the above nine divisions of retail automobile accounting a special award will be made.

Should the contest result in a tie for any of the above prizes priority of receipt of the paper submitted all other conditions being equal will decide the award.

CONDITIONS.

Papers submitted must be in English, and must be original.

Every method or form or system submitted must be in actual use in some garage or automobile agency, and that garage or agency be named.

Full privileges of publication of all papers submitted must be granted GARAGE EFFICIENCY.

No papers submitted will be returned in any case.

There is no limit on the number of papers that may be submitted by any one contestant.

Papers should be typewritten if possible. Copies of forms used should accompany the description of the method or system in which they are used. Extremely detailed descriptions and explanations are not necessary; the simple statement of the way in which each form is used, with a copy of the form, is all that is required.

Our Question Box

ELECTRICAL INFORMATION.

Marion, Ind., Feb. 16.—Editor GARAGE EFFICIENCY: Will you kindly advise how to make an experimental alternating current rectifier for small work. We saw an article, with illustrations, in some magazine, some time ago, explaining the making of one from four glass jars filled with some kind of acid solution. Can you help us out on this?

Also will you please explain the effect on voltage, amperes and ohms in putting first one 16 c. p. lamp on a 110 v. circuit, then two, then three, in series, and connecting up from negative side for testing purposes? Does the voltage become less the more lamps you insert in series, or why is it you can connect two 110 v. 16 c. p. lamps in series on 110 v. circuit and then test 6 v. bulbs without burning them out?

THE PEOPLE'S GARAGE.

It has not been possible to learn of a method of making a small alternating current rectifier in the manner described. Experts believe the idea is of doubtful value and that if made for continuous use materials and upkeep would make it cost more than one bought on the open market. There are some very satisfactory rectifiers of this character now offered at \$25 and they will serve a very long while.

Regarding the second inquiry perhaps a better idea of an electrical circuit can be given by presenting the old-time formula:

E

C equals —, or current (in amperes)

R

Equals Electromotive force across circuit (in volts)

Divided by Resistance (in ohms).

That holds for direct current and for alternating current where the resistance is non-inductive, that is *not* in the shape of coils with iron cores, etc.

The resistance of a 110 volt, 16 c.p. lamp, is about 220 ohms.

The voltage across circuit is 110 volts, therefore—referring to formula—with one lamp in circuit:

E 110

C equals —, C equals — or $\frac{1}{2}$ ampere.

R 220

If there are two lamps in the series, we would have the following:

C equals $110/440$, or current would be $\frac{1}{4}$ ampere.

For three lamps in series the current would equal:

110 (volts) 1
— or — ampere.

660 (ohms) 6

In any case a lamp of very small voltage, as 6 volts, for instance, would have current going through it in the three cases, when put in series, of $\frac{1}{2}$, $\frac{1}{4}$ or $1/6$ ampere respectively.

Two lamps in series probably would be the safest to use for testing, as this would limit current to a lower value

than that which is normal for the smallest ordinary type of automobile Tungsten or Masda light. It does not make any difference which side of line the testing is made and the information given will hold good for either alternating or direct current.

ARE REPAIR SHOPS NECESSARY?

Joplin, Mo., March 9.—Editor GARAGE EFFICIENCY: Is it practical to operate a garage simply for storage purposes; that is, without a repair shop?

A. B. McCONNEL.

In the estimation of the public a garage is a place where a car may be stored, cleaned, where oil, grease, gasoline or electricity is on sale, where repairs or adjustments are made and where accessories or parts may be purchased with the assurance that they will be properly installed.

A garage operator may elect to serve the public in any or all of these particulars. In some of the larger cities the garage operators are equipped, some of them, to handle only the minor repairs, sending the larger jobs to the houses making a specialty of repairs, but they maintain machinery, tools, mechanics and supplies to take care of the pressing needs of their customers.

The profits from the business are derived from storage, repair work and the sale of supplies, parts and accessories. Unless there is revenue from the several sources enumerated, unless each department is serving to make the business profitable or is operating to serve as a feeder for other departments, the business is not well hooked up or adjusted.

In some cities of medium size storage is sold at cost or even below cost in order to secure a better hold on the patronage of the car owner. If a condition similar to that should prevail in Joplin it would be impossible to conduct a storage business at a profit. Such a garage would have only one service to offer as against the many forms of service offered by others.

Existing methods of operation should be very carefully examined in the particular field in which it is proposed to locate before any decision on a matter of this vital character is reached.

Just a suggestion: Why not make a survey of the situation, determine in what way the public is not being served, then put in an establishment that will give more and better service than any other garage man is offering? When competition gets down to a service basis, when the struggle for business becomes a struggle to serve most acceptably, with profit to the operator and satisfaction to the patron, then the stability of the garage industry will be assured.

A SUGGESTION.

BAY CITY, MICH., Feb. 23.—Editor GARAGE EFFICIENCY: We are writing you regarding an idea which we believe would be a benefit to the garage, manufacturer and GARAGE EFFICIENCY.

Many trade papers are as valueless as the average newspaper, because after reading them carefully or hurriedly, as the case may be, they are never referred to again. A clever article may be clipped or marked, but no equally good advertisement gets such attention and unless the person interested in an advertisement is located near the manufacturer, the manufacturer a good many times loses a buyer because the address of the nearest branch does not also appear. It is not the least necessary that branch addresses clutter up a good looking "ad."

A note at the foot stating upon what page a list of branches, distributors or agents would be found. This list need not appear in every issue if note at the foot of the "ad" told, see list of branches GARAGE EFFICIENCY for January, page 40. This would then make GARAGE EFFICIENCY the equal of a trade directory or better, being always up-to-date and each number kept for this very reference.

STANDARD REPAIR SHOP.

(Signed) W. A. Powell.

L. C. STEER'S EXPERIENCE IN COMPETITIVE SELLING.

DETROIT, MICH.—I think one of the sales of which I am the proudest I won by the hardest kind of a fight way back in the latter part of the 80's, when twine binders had only been known in the country for about three years. I was called into competition with about six other machines in actual operation in the field. It became necessary for me to take the driver's seat on the machine I was trying to sell and, while my machine was no better than some of my competitor's machines, the price was fully as high, if not higher. I succeeded in making the sale after driving the machine in the competitive test for nearly a day. My success in this case was due entirely to my knowledge of machinery, my experience in handling horses and dexterity in handling the machine.

I closed this sale with the most pride of any sale I ever made, but it was *determination, quality of goods and better knowledge of the situation that enabled me to make the deal and get my price.*

My experience as a salesman has been somewhat limited, but my observations have told me there is nothing gained from price cutting.

If a man has quality in the goods he is trying to sell, if he displays his goods properly, sticks to the truth, gains his customer's confidence, gives him goods that bear out their reputation, the price will take care of itself, for the other

elements are not essential to good salesmanship.

Probably the largest amount I ever sold on one order would not exceed \$50,000 to \$60,000. The circumstances governing some of these sales were quite

favorable, but when a fight really came up it was a question of quality and price and I have always discovered that a *salesman with quality behind him can get his price*, but it takes a salesman to turn the trick.

I also have discovered *it is an easy matter for any one to give goods away*, that is, to make a sale by cutting the price, but it is disastrous to the firm employing such methods. L. C. STEERS,
Secretary Garage Owners' Association

Association Intelligence

N. A. T. A. IS INTERNATIONAL.

Owing to the large number of requests from garage operators in eastern Canada for membership in the National Automobile Trade Association, it was decided at a meeting held March 3 to accept as members garage operators and car dealers of Canada.

Special requests were received from Toronto, Montreal, St. Johns and Hamilton.

ALLENTOWN DEALERS ORGANIZE.

ALLENTOWN, PA., March 3.—George W. Hunsicker was elected president of the Lehigh Valley Automobile Trade Association at an organization meeting held in this city. The vice-president is A. J. Meyers; secretary, E. T. Satchell; treasurer, Walter Wink. The association includes in its membership practically all of the car dealers and accessory houses in the city. The purposes of the organization are similar to those of the N. A. T. A.

FORMING OHIO ORGANIZATION.

Columbus, Feb. 26.—A. J. Peebles, secretary-treasurer of the Ohio Automobile Trade Association, is busy organizing local associations in many sections of the Buckeye State. He is making up an organization to cover Stark county, with headquarters in Canton. That organization is to be known as the Stark Automobile Trade Association and will include members from Massillon and Alliance.

A movement has been started for the organization of garage owners, dealers and repairmen in the counties of Ashtabula and Gueaga, with headquarters in Ashtabula. Plans have been made for the organization of Lake county with headquarters in Plaineville.

BUCYRUS ASSOCIATION IS BORN.

Bucyrus, O., Feb. 26.—Secretary-Treasurer A. J. Peebles of the Ohio Automobile Trade Association was at Bucyrus last week to help in the organization of the Crawford County Automobile Trades Association, which will cover the entire county. The new organization starts out with twenty-six members. The organization affiliated immediately with the Ohio organization.

Permanent officers were elected as follows: H. A. Paxton, president; E. T. Rayl, vice president; E. R. Lewis, secretary-treasurer.

The board of trustees is made up of the officers and one from each of the important towns in the county, New Washington, Cresline, Galion and Bucyrus. The member from New Washington is H. S. Hilderbrant, and from Galion, N. J. Shea. Other trustees will be named later.

PACIFIC COAST N. A. A. J. DIVISION.

An additional step, which will assist in making the National Association of Automobile Accessory Jobbers of truly national character was taken last week in San Francisco when the "Pacific Coast Auxiliary of the National Association of Automobile Accessory Jobbers" was organized by Commissioner William M. Webster. This auxiliary is further divided into Northern, Central and Southern Divisions, with C. C. Hills, manager of the Electric Appliance Co., San Francisco, chairman, and H. H. West, Western Rubber & Supply Co., Los Angeles, secretary.

The Northern Division comprises Spokane, Seattle and Portland, in which cities and surrounding territories that division will operate and hold its meetings. The Central Division comprises, San Francisco, Sacramento, Fresno and Oakland, and the Southern Division, Los Angeles, San Diego and points south.

Each division and auxiliary is under the jurisdiction of the association and each will meet about two weeks after the national convention at Hot Springs, W. Va., in May. All will work in complete harmony with the parent association and the next meeting of the three divisions will take place at Del Monte, May 26 and 27.

KALAMAZOO AUTOMOBILE TRADE ASSOCIATION IS LAUNCHED.

Representative garage men, car dealers and accessory dealers of Kalamazoo met on the evening of February 29 at the Park-American hotel and organized the Kalamazoo Automobile Trade Association.

They were aided in this work by the representatives of the other automobile

trade associations of the state, and the meeting was characterized as "very successful, because it was handled by L. C. Steers, of Detroit," who served as a major part of the steering committee.

After a delightful dinner, E. P. Sumption was chosen temporary chairman and W. H. Wooden, temporary secretary.

Following the temporary organization there was a full discussion of the needs of an efficient association and an outline of the work before such an organization.

Constitution and by-laws, similar to those of the Michigan Automobile Trade Association, were adopted. A board of directors, composed of E. P. Sumption, H. L. Triestram, Newton Root, R. E. Fair, Harry Scott, J. R. Thompson and W. H. Wooden, was elected.

Following a recess the board reported the election of the following of its members to serve as officers:

President—E. P. Sumption.
Vice-President—Harry Scott.
Secretary—W. H. Wooden.
Treasurer—H. L. Triestram.

This is one of many meetings planned to extend the scope of the work of the National Automobile Trade Association. This organization begins life with a substantial membership and clearly defined ideas of the work, and rewards for the work, before it.

E. V. A. TO JOIN NATIONAL ELECTRIC LIGHT ASSOCIATION

At a special meeting of the Electric Vehicle Association, held in New York March 10, it was decided to accept the invitation to join the National Electric Light Association as a section, to be known as the Electric Vehicle Section, and to dissolve the organization.

A statement of interest to every member was prepared by Walter H. Johnson, president of the late E. V. A., which covered the situation concisely. This statement follows:

The affiliation of the Electric Vehicle Association of America, with its older and larger sister society—the National Electric Light Association—in my opinion marks an epoch in the history of the electric vehicle industry.

During the past six years the far-reaching and aggressive activities of the Electric Vehicle Association of America, through its membership, which has been tripled in the last few years to approximately 1,200, has attracted the attention of the National Electric Light Association, and it has been felt that if closer relations

could be established between the two associations that the prestige which the National Electric Light Association has acquired in its thirty-nine years of useful life, would materially assist electric vehicle propaganda. Considering that the National Electric Light Association numbers among its 14,000 members the majority of the 6,000 central stations (electricity supply companies) in the country, such an affiliation is especially desirable.

In turn the electric vehicle co-operative activities would increase the scope of the National Electric Light Association, thereby adding to its usefulness and strengthening its influence, in which all electrical developments would profitably participate. Furthermore, co-operation between the two associations would tend to centralize educational and development work, and would mark a desirable step toward eliminating duplication, which frequently results when two or more associations attempt to cover in whole or in part like fields.

The electrical industry is generally regarded as the best organized commercial group. As electricity is destined to supersede all other forms of energy for light, heat and power, and as such a condition can be more readily and easily secured through the scientific co-ordination of all related efforts, it would appear desirable to bring the efforts of multifarious developments together into one great, highly organized body whose carefully systematized work would rapidly assure results that might otherwise be delayed if sought through miscellaneous and distinct bodies.

It will therefore be apparent that the affiliation of the Electric Vehicle Association of America, including its executive officers and entire staff, with the National Electric Light Association, to be known as the Electric Vehicle Section, represents a distinct advancement calculated to considerably strengthen the associations' positions and to secure greater results. The Thirty-ninth Convention of the National Electric Light Association will be held in Chicago in the Congress Hotel, May 22-26 inclusive, and a conspicuous feature of the convention will be the sessions devoted to important electric vehicle topics. It is anticipated that a number of highly interesting electric vehicle exhibits will be held in the Auditorium, which will house general electrical exhibits during the convention, and also on Michigan boulevard and in Grant park, opposite the hotel, where a number of various types of electric vehicles will be shown. The several thousand central station operators who will visit the convention will have an unprecedented opportunity of familiarizing themselves with electric vehicle apparatus which will, without doubt, result in considerable new electric vehicle development over the entire country during the coming year.

NEW YORK GARAGEMEN PERFECT ORGANIZATION.

New life and new purposes were injected into the work of the United Garage Associations of New York State, Inc., at the annual meeting held at Albany, N. Y., March 2 and 3.

Throughout all sessions a spirit of co-operation was strongly in evidence, the members speaking to questions brought up from and in the light of extended practical experience in handling the business.

It was decided to change the date of the annual meeting from the first Wednesday in March to the first

Wednesday in January and the place of meeting from Albany to New York City.

After a full consideration of the necessity of a lien law it was decided to urge the passage of a law similar to that now in force in New Jersey.

A measure to prevent fraud on garage operators was approved.

A resolution endorsing the Stevens bill was adopted and a resolution providing for a revision of the by-laws was approved.

The officers selected for the year were: President—W. M. Haradon Royal Garages, New York.

Vice-president—J. Van Benschot, Poughkeepsie.

Treasurer—Edward W. Leahy, Albany.

Secretary—George F. Kaiser, New York.

Directors—C. Howard Potter, New York; H. T. Warnick, Amsterdam; Martin H. Snyder, Kingston; Senator James H. Emerson, Schroom Lake; Thomas N. Wilson, Ossining; William Petry, Hudson; C. M. Dudley, Rochester.

It was decided to continue Secretary, pro tem., George F. Kaizer in office for a three-year term, compensation to be received at a rate agreed upon.

Planning to Do Things.

Future work of the United Garage Associations is to be conducted on the extremely practical basis of producing results.

It has been decided to make thorough investigations. From the results shown to formulate a plan, to place that plan in operation, to shower rewards on the membership and to compile records of the work undertaken and accomplished.

An active campaign will be inaugurated for additional membership. Local organizations will be formed to affiliate with the state, just as the state, in all probability, will affiliate with the National Automobile Trade Association.

It was pointed out that there now exists in New York twelve local organizations of garage men and five dealers' organizations, all of which are eligible for membership in the state association. There are in the state 2,862 separate establishments upon which to draw for additional members.

On Behalf of the National.

R. A. Wilson, secretary of the National Automobile Trade Association, outlined the plans of organization and work undertaken by the national organization, which, he pointed out, was absolutely in line with that of the state association except that it covers all interested in a retail way in all parts of the country.

His invitation to affiliate was referred to board of directors with power to act.

A resolution deploring the action of refiners of oil in bringing about a condition of instability in the industry through apparently unwarranted and inconsistent

price advances was adopted and members and car owners were urged to bring conditions before the legislature with a view to securing a thorough investigation of the alleged causes for the increase in the price of gasoline.

REPORTING LAW NOW IN OPERATION AT JOPLIN, MO.

JOPLIN, Mo., Feb. 20.—The city commission has conceded four points to owners of garages.

It amended an ordinance that requires the owners to report to the chief of police various matters concerning cars that are driven into their shops.

As the ordinance now stands the garage owners need not report to the chief these items concerning cars:

Serial number.

Factory number.

Description of lighting system.

Description of tires.

Requires Ten Answers.

It does require these items:

Name and address of owner.

Name and address of driver.

State license number.

Name of manufacturer.

Motor number.

Style of machine.

Color.

Peculiar marks identifying machine.

Other information required by chief.

The ordinance applies to such cars as are driven by a person unknown to the owner of the garage into which it is driven. Reports must be made to the chief of police by 12 o'clock of the day following the appearance of strange cars.

Mayor Hugh McIndoe said the ordinance had been under consideration for some time.

Opposition to the ordinance as it was originally passed resulted in the garage owners starting a movement calculated to result in the recall of the mayor.

J. C. Jones, owner of the Joplin Garage, Sixteenth and Main streets, has been acquitted of a charge of failure to comply with the automobile reporting ordinance by Municipal Judge Bert E. Wagner, and the case against him was dismissed.

Testimony at the trial showed that the car on which the garage man did not make a report was one that frequently was placed in his establishment and was often stored there. He had made a previous report of the car, it was proved.

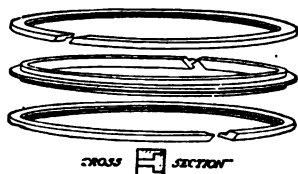
"By an agreement between Mayor Hugh McIndoe, Chief of Police H. N. Milligan and the garage men," Judge Wagner said, "the garage owners are required to make only one report on automobiles belonging to regular customers."

Jones was fined \$25 and costs by Judge Wagner several weeks ago on a similar charge, and appealed the case to circuit court. He declared his intention of testing the constitutionality of the automobile reporting ordinance.

Developments in the Automobile Accessory and Supply Field

A THREE-SECTION PISTON RING

A piston ring of proven worth has been placed on the market by the Trump Manufacturing Company, of Crown Point, Ind. This is known as the Trump Multiple Piston Ring and is composed of three sections, each section having equal



resiliency and expansion and when assembled the ring exerts uniform pressure against the entire cylinder wall.

In describing this new product George I. Trump, on behalf of the producer, said: It is imperative that the ring pressure be equally distributed, otherwise the cylinder would wear eccentric and the rings thus lose their usefulness and necessitate the expense of reboring, etc., which is the trouble with most of the rings on the market. Trump Multiple piston rings absolutely put a stop to carbon problems and also are a permanent barrier to escape of compression. They are the culmination of years of experiment and are, in successful use in thousands of motors in this country.

This company also is putting out a light weight piston for Ford cars that is meeting with great success. This is known as the Cast-Lite. They come in sets of four, equipped with Trump Multiple Piston Rings, new wrist pins and no-slip bushings are also included.

SOMETHING THAT WILL SELL.

McGarth's New Lightless Light. Every vehicle should be equipped with one and every garage man and dealer should have a stock from which to supply the demand.

The price is so low, \$1, that the light is within the reach of the owner of every vehicle. There is a good profit in the sale for the dealer.

The light, which is a reflector, is attached to the rear of any vehicle. When the headlight of an oncoming automobile strikes the focal surface a bright red light, the danger signal, is given forth. J. T. McGarh & Son, Bloomington, Ill., are the manufacturers.

HOW TO RUN A LATHE.

Every repair shop should have one or more copies of Lathe Book No. 16, "How to Run a Lathe," issued by the South Bend Lathe Works, South Bend, Ind.

A nominal charge is made for the book, 10 cents, to cover cost of the postage. It is a practical publication, written for the guidance of the man who runs a lathe. Pages two and three will be of

use to the man who is about to equip his shop with power, as information on the layout and power required is given.

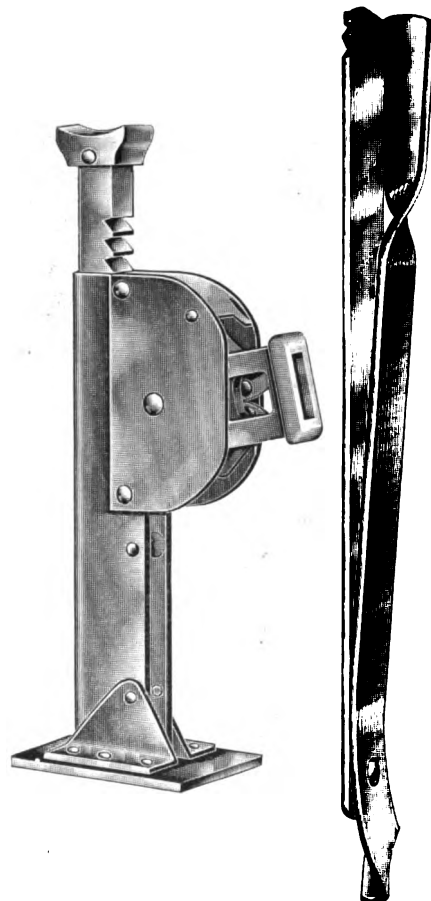
The features that will appeal to the mechanic are those giving details of operation, showing that more operations can be made with a South Bend Lathe than many believe possible.

NEW JACK CONTROLLED FROM HANDLE.

Somewhat of an innovation in the jack line is being brought out by Lane Bros. Company, Poughkeepsie, N. Y.

In general appearance and construction this jack resembles the company's other jacks, but the new one is arranged for very short stroke and provided with a handle thirty-six inches long, by means of which the jack may be placed in position without the necessity of the operator stooping under the car. The handle is jointed for stowing away in the tool box.

There is no key on the jack. Direction is controlled by the distance the handle is entered into the socket. If all the way in the load is raised. Lowering is accomplished by pulling the handle back a half inch or so. There are two auto-



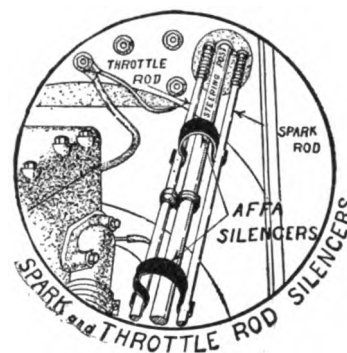
Lane Bros. New Jack.

matic spring notches on the handle, where engaged by the socket, corresponding to these two positions. These also serve to hold the jack quite securely on to the handle while placing or removing from under the car.

To change the direction of jacking either up or down by merely pulling the lifting handle either a trifle in or out of the jack is an innovation which should appeal to all motorists. These goods can now be purchased through the automobile supply houses or direct from Lane Bros. Company, Poughkeepsie, N. Y.

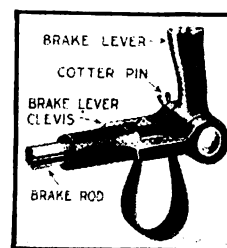
STOPPING THE RATTLE.

Rattling in the steering post usually is due to looseness and vibration of the spark control rod and the throttle rod. The AFFA spark and throttle rod



silencers for Ford cars are intended to do away with that annoyance. They may be applied in a moment and stop the rattling by forcing the rods against the bearings that hold them. The retail price is 25 cents per pair.

This Ford specialty is put out by W. S. Graffan, of Northampton, Mass., who also is offering a clevis silencer to be



applied to the Ford brake rod connection. This may be installed without machine work or removing any parts.

NEW AHLBERG BRANCH.

Announcement comes of the opening of an Atlanta branch by the Ahlberg Bearing Company. The new store is located at 323 Peachtree street. W. C. Bender, sales manager, states that the southeast-

Get Ready NOW

Write or Dealers' Prices on Shanhouse Motorsuits.



You can sell one to the owner or driver of every car that comes to your garage.

Sell them to the men that work in your garage or other mechanics.

An assorted stock calls for a small investment. Make arrangements for yours now—prepare for the coming demand.

There is not a motorist in the country who can afford not to carry a Shanhouse one-piece Motorsuit in his car.

We are selling to your customers. Will divert the trade to you if you will stock Shanhouse.

You can offer Shanhouse Motorsuits to your customers on the "Money-back-if-not-satisfied" plan.

Special inducements to all who put in stocks during the Winter months. *Write TODAY.*

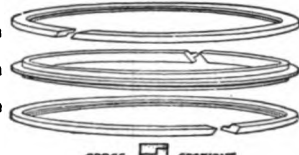
WM. SHANHOUSE SONS

ROCKFORD, ILL.

Trump Multiple Piston Rings

Insure Your Motor's Power

Three Sections
Insure Uniform
Pressure on the
Cylinder Walls.



Save Gas and
Oil. Prevent
Carbon and Lost
Power Troubles

Sectional View of Ring

They make Old Motors New and KEEP NEW MOTORS NEW.

THIS MARK
IS YOUR
PROTECTION



\$1\$

per Complete Ring



Cast - Lite Pistons

The Superior Light-Weight Piston for FORDS. **\$17 per Set of 4.**

Equipped with 12 Trump Multiple Piston Rings, No-Slip Bushings and New Wrist-Pins.

Write for Literature.

Trump Mfg. Co. 8 Union St., CROWN POINT, IND.

ATTENTION, FORD OWNERS!—

SAVE Your Car and SAVE Money.

CUT the expense of the upkeep, gasoline and oil by using **R & M Aluminum Alloy Pistons** fitted with **R & M Conform Piston Rings**, the ring that has not only sealed joints but has the power of conforming to irregular and worn cylinders, the essential feature of a compression ring.

Get **Results** by using this combination, then, tell others.

This combination, four R & M Aluminum Alloy Pistons fitted with R & M Conform Piston Rings for only - - - \$30.00

The R & M Conform Piston Rings are suitable and most economical for all kinds of pistons, such as are used in automobiles, marine engines, steam packings, oil pumps and all air appliances where rings are used.

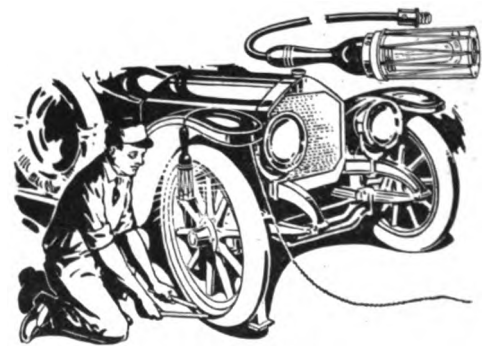
Distributors

**SUPERIOR
AUTO PARTS CO.**

938 Ft. Wayne Ave.,
INDIANAPOLIS, INDIANA



Write for Prices



Trouble with Your Automobile

—whether on the dark road or in the garage, requires good, bright light directed on the affected part.

The Automobile Electric Trouble Lamp

may be attached to the car battery, or to any convenient lighting socket. The long cord enables one to reach any part of the car. The lamp is protected by a wire guard. All danger from flame is eliminated.

Commonwealth Edison Company

Edison Building

72 West Adams Street

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ern territory will be handled in charge of H. A. Fisher.

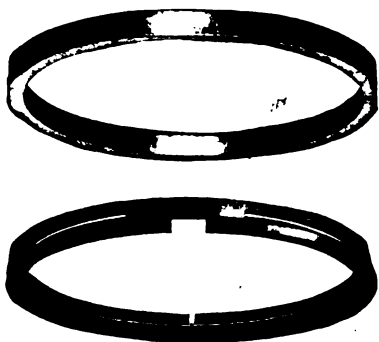
The Ahlberg Bearing Company, of Chicago, during the past nine years has consistently enlarged its organization and scope, now having branches in New York, Boston, Detroit, Cleveland, Minneapolis, Los Angeles, St. Louis and Atlanta.

It is possible for the customer to receive immediate service at any of these branches where he may obtain, for his worn out bearings, a reground bearing of any type or make, guaranteed equal to new, paying about one-fifth of the price of a new bearing.

The Ahlberg Bearing Company's factories are located at Chicago and Los Angeles, where all the regrinding and manufacturing are done of special bearings. Ample stock rooms at each branch carry new single row annular thrusts, new double row and radax bearings.

THE NEW AUTOMATIC PISTON RING.

A new piston ring, for which patents are pending, has been placed on the market by the DuBois Machine Shop, Inc., 118 Hudson avenue, Albany, N. Y. This is a two piece ring which fit together to



form a solid band of metal around the piston. It is claimed this ring creates a perfect vacuum on the carbureter on the intake stroke and perfect compression on the compression stroke, and that sealing against vacuum is a feature which has been overlooked by other piston ring manufacturers.

BURD RING APPOINTMENTS.

The Burd High Compression Ring Company, of Rockford, Ill., announces the opening of two additional sales offices.

E. C. Fish was appointed manager of the new Rochester office, which is located at 558 Lyell avenue. The new Pittsburgh office will be under the management of E. J. McClees at 904 East End Trust building.

H. F. Belcher, who has been working out of the Chicago office for some time, has been transferred to the Peoria, Ill., territory.

C. O. Schlagenhauff, formerly with the L. C. Smith Typewriter Company, has accepted an appointment with the Burd High Compression Ring Company, of

Rockford, Ill., and will make his headquarters at Detroit.

L. G. Rasmussen, for a number of years with the Woods Vehicle Company, has joined the selling organization of the Burd High Compression Ring Company, of Rockford, Ill., and will be attached to the Chicago office, covering the northern Illinois territory outside of Cook county.

SERVICE TRUCK COMPANY UNDER NEW MANAGEMENT.

A. B. Hanson, formerly manager of the Service department of Chalmers Motor Company, Detroit, recently became general manager of the Service Motor Truck Company, Wabash, Ind.

Mr. Hanson is one of the most widely known men in the automobile industry and has had a broad experience as an executive. From 1903 to 1909 he was connected with the Pope Motor Car Company, of Toledo, resigning his position with that company to engage in the retail automobile business in Toledo. In this field he represented the Oldsmobile,



A. B. Hanson, Wabash, Ind., Manager Service Motor Truck Company.

Oakland and Detroit Electric cars. About five years ago he joined the Chalmers Motor Car Company.

The Service Motor Truck Company is one of the oldest of the truck concerns which builds trucks exclusively, the complete line including five worm-drive models, a one ton, a one and one-half ton, two ton, three and one-half ton and a five ton.

Mr. Hanson announces that the present Service factory, which utilizes 75,000 square feet of manufacturing space, is being increased by the addition of two new buildings which will enable the company to double its output.

NEW TYPE OF FORD IGNITION.

"Paramount Products" is the trade name of the new line of automobile accessories which the Detroit Engineering Products Company of Detroit, Mich., is manufacturing and placing on the market.

The Paramount interrupter, taking the place of all vibrators and batteries on Ford cars, heads the list of accessories the new company manufactures. Others will follow as the season progresses.

The Paramount interrupter is described in the company's literature as differing essentially from every other type of Ford ignition. It consists of a bracket containing a vertical shaft which turns a 32 toothed cam. The teeth operating against a breaker arm, mechanically and automatically breaks the circuit between the Ford magneto and the coil at the proper instant during each revolution of the fly-wheel, thus eliminating the necessity for vibrators.

The new instrument is said to be easily installed, no cutting into the crank case nor drilling of holes being required. It is geared to the cam shaft and the Ford commutator is placed above the interrupter and advanced and retarded from the steering wheel as before. The present Ford coils (without vibrators) are used. No battery is required, current direct from the Ford magneto being used.

Thorough tests have been made by the best mechanical and electrical engineers in Detroit, these engineers agreeing that the instrument is mechanically and electrically right, and solves the troublesome Ford ignition problem, allowing greater flexibility and smoother operation of the motor.

NEW SIZES OF TIRE-DOH.

On account of the increasing popularity of Tire-Doh, the Atlas Auto Supply Company, manufacturers, have found it necessary to get out new sizes.

Heretofore Tire-Doh has been offered only in one size, retailing at \$1. This size will be continued, but the company now offers a Junior size package retailing at 50 cents, and also offers the Tire-Doh Cement and the Tire-Doh separately. Tire-Doh Cement can now be bought in 4 ounce packages for 25 cents, and the Tire-Doh alone in 2 ounce packages for 50 cents.

Tire-Doh is not a new product with the jobber, dealer or the car owner. It has been on the market more than six years and in that time has undergone the most rigid tests and, according to the manufacturers, has stood up under all of them.

The manufacturers guarantee Tire-Doh will permanently repair the smallest puncture or the largest inner tube tears without heat or tools. They state further that one of their dealers recently showed them an inner tube with a 37 inch tear in it that had been successfully repaired



Edison

**Alkaline
Lighting
and
Ignition
Batteries**

Batteries and Supplies
carried in Stock at our

Service Station

Every Garage Owner should have information
about the Edison Battery on his desk.

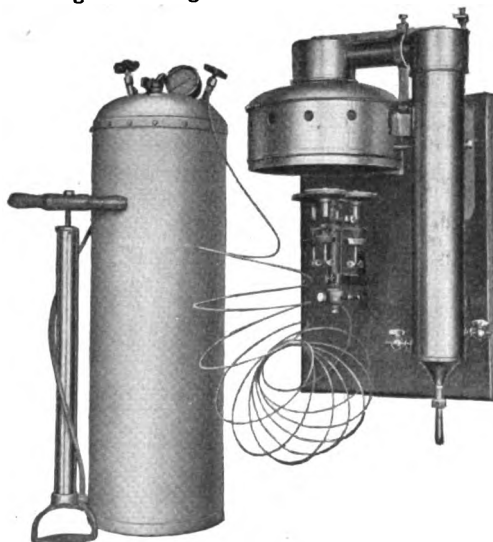
Write us.

EDISON STORAGE BATTERY CO.
Orange, N. J.

Chicago Address: 2025 Michigan Avenue

GIVE YOUR STORAGE BATTERIES A CHANCE

Increase their life and capacity by using only distilled water when flushing or washing.



Gasoline or Kerosene operated type.

Several hundred garages are pleasing their customers by using distilled water in their batteries.

It is a splendid Talking Point in going after new business.

Your profit from the sale of distilled water will quickly pay for the Still.
CAPACITIES—One-half to 15 gallons per hour.

Operated with steam, gas, gasoline or kerosene.

THE IMPROVED "ROCHLITZ" AUTOMATIC WATER STILL is used and recommended by all the leading storage battery manufacturers.

MANUFACTURED BY
Manhattan Building W. M. LALOR Chicago, Ill., U. S. A.

TO SELL—AIR COMPRESSOR.

FOR SALE—Portable air pump, ¼ h.p. motor, 110 V. 60 S. S. V. Absolutely new. Four-cylinder Kellogg pump. New leather washers, base, cord, cover and air hose included. Price \$35.

SPARTA GARAGE & SUPPLY CO., Sparta, Ill.

Learn the Automobile Business

We teach you construction, repairing and driving in 6 to 8 weeks. Special instruction in Acetylene Welding, Knight Engines, Vulcanizing, Electric Starters, automobile salesmanship. Greer graduates always in demand. Earn \$150 per month and up.

Courses \$15, \$35, \$50, \$65 and \$150.
Booklet "How to Succeed in the Automobile Business"—FREE. Write to-day.

GREER COLLEGE OF MOTORING

1519 S. Wabash Ave., Chicago, Ill.

Save Money on Rims

I handle every rim in use and some that are no longer manufactured.

Mr. H. Nelson, garage owner, who runs a taxicab line in Racine, Wis., will tell you, if you write him, that he saves fully 25 per cent on rims he buys from me in addition to the regular trade discount.

Now, just think this over a moment. Isn't it worth your while to have my price list, even if you are not in the market for rims now. You can't tell when you'll need one or more rims—and need them quick—so why not post yourself and get my bargain list—write today.

SPECIAL—If the law of your city requires car owners to use dimmers, I can supply you with the Simplex glare chaser, the best dimmer in the world and the cheapest. Only \$1.00 a pair retail. You can make 60 per cent on small orders and more if you buy in quarter gross lots.

Write today—lest you forget.

W. P. KASTNER
2125 Michigan Ave.

with Tire-Doh and driven more than 1,500 miles.

In addition to repairing punctures and blow-outs of inner tubes, Tire-Doh is most valuable in sealing holes and cuts in casings before they develop into sand blisters.

According to the manufacturers, Tire-Doh is also an effective repair method for the reseating of valve stems.

The Atlas Auto Supply Company, manufacturers of Tire-Doh, have recently found it necessary to move into a much larger factory which they have purchased at 656-660 West Austin avenue, Chicago. This company is considered one of the most successful in the field of accessory manufacturers.

SEATTLE SPECIALTIES.

From Seattle, Wash., comes information respecting certain specialties which should be of interest to every garage operator. These are put out by the Romort Manufacturing Company, of Seattle, and include an engine cleaner, style B. automatic air valve and tank connection.



The engine cleaner is used as a spray to clean the engine of automobiles or motorcycles. The tank holds two quarts of cleaner, kerosene being recommended, sufficient to clean the largest engine. The air does not enter the tank, but passes through the air tube, picking up the fluid at the extreme end of the cleaner, thereby eliminating all danger of explosion.

Style B automatic air valve is designed to meet the popular demand for a small and inexpensive automatic air device. It



is made of solid bronze with a universal stem that will fit any air tubing. It is automatic in opening and closing and absolutely air tight.

The Romort tank end connection has

step up stem to fit any size hose. It should prove a great aid to garage men



who wish to take in their air lines at night.

KASTNER RIMS.

An exceptional rim service is offered garage operator and car dealer by W. P. Kastner of Chicago.

This is one of the exclusive rim houses of the country. With rims of all description Mr. Kastner offers, also, expert information that is of very great value to those who care to consult with him.



W. P. Kastner, Chicago, Ill.

When in need of spare rims or parts Mr. Kastner's advice is much sought by garage men and locally by car owners.

This idea of furnishing advice with a product did not originate with Mr. Kastner, but his customers claim he has done much to perfect the idea.

WASH YOUR HANDS WITHOUT WATER.

A new cleanser on the market called Spee-Dee Cleanser can be used to wash the hands without water.

This product is packed in quart cans and is making a great hit with mechanics and automobile drivers. It is a white emulsion which quickly dissolves all grease and grime and can be wiped off the hands, leaving the skin soft and clean. The appealing feature is that it does not irritate the skin and contains no grit. Its action is to dissolve the grease without injuring the skin.

It can also be mixed with hot water

and at a cost of one cent per gallon makes an excellent solution for washing the engine, gears, running boards, etc. Quickly cuts grease instead of mixing with it,



as does gasoline and kerosene, besides being far cheaper.

The selling price is 15 cents a can. A good profit is allowed the dealer.

Spee-Dee Cleanser is manufactured by the States Chemical Company, 656 West Austin Avenue, Chicago, Ill.

NOTED CARBURETER ENGINEER JOINS MASTER CARBURETER CONCERN.

DETROIT, MICH., Feb. 26.—It has just been announced by Arthur L. Jelley, general manager of the Master Carbureter Corporation, this city, that Raymond M. Anderson, well-known carbureter engineer, has been appointed chief engineer for the company. Mr. Anderson has figured prominently in motor car circles for a number of years. For five years he was chief engineer of the Stromberg Motor Devices Company, Chicago, having much to do with the development of the carbureter of that name, and resigned from that concern to become research engineer for the J. I. Case Thrashing Machine Company, Racine, Wis., maker of the Case automobiles. His experience has long been along the lines of better carburetion, and there is much significance in the move of the Master people.

It is realized by this concern as well as other of the manufacturers of carbureters that instruments must be continually experimented with in the effort to promote greater fuel economy, for with gasoline soaring and every indication that it will continue to demand a high price, the necessity for reduction of the amount used descends upon the shoulders of the makers of carbureters as much or more than it does upon the designers of cars.

The Master company states that while it believes its instrument to be strikingly economical of fuel, as we have been in the habit of judging economy, yet the time has come when carbureters must do even better and be even more sparing of the fluid. The concern has, therefore, realized that no matter how efficient an instrument may be, there is always chance for betterment, and in line with this policy they looked about for the best available expert to do this development work.

EXPERT REPAIRING
ALL MAKES

Magnetos Coils
Generators
Starting Motors

Quick Service

Magnetos Bought and Sold, Remagnetized Ignition and Lighting Systems Rewired.

CHICAGO MAGNETO EXCHANGE

2333 MICHIGAN AVENUE
Phone Calumet 3954 CHICAGO

Best by Test Always Wear a Smile

Make your cars run smooth and easy

A Pennsylvania Product

Give us a one barrel trial order
Special discount to Garage Men and dealers

If in need of L. O. Soap, write us for price. We have it.

Non-Carbon Auto-Oils

Light
Medium
Heavy

The S. A. Schwarz Oil Co.

Cleveland Ohio Columbus
Headquarters Cleveland, O.
Agents Wanted. Write for our proposition.

G & J

NOBBY TREAD
CHAIN TREAD
PLAIN TREAD

THEY'RE GOOD TIRES

THE OHIO RUBBER CO., Distributors
DETROIT CLEVELAND CINCINNATI

**Dealers Service Station
..FOR TIRE REPAIRS..**

**GUARANTEED WORK
PROMPT SERVICE
RIGHT PRICES.**

**SPECIAL ATTENTION TO
GARAGE ORDERS**

TRIPLE TREAD MFG. CO.

1545 Michigan Avenue, Chicago
Phone Calumet 2456

American Gasoline Filling Outfits

Safe — Quick — Accurate — Economical

American Double-acting, Continuous flow gallon measuring Pump delivers gasoline at the rate of 14 gallons per minute, which is as fast as most "Five Gallon" Pumps and costs much less. Accurate Measurement. ACCESSIBLE Valves.

Fully equipped with Filter, Meter, Hose Draining Valve. With or without Electric Light Fixture.

Storage Tanks, any capacity desired.

**Portable Wheel Tanks
With Double-Acting Pump
The Best Made**

All kinds of Storage Outfits for Gasoline and Oils, Paints, Varnishes, etc., for Public or Private Garages, Stores, Factories, Railroads, etc.

**Double-Acting Curb Pump
(Patented)**

Write for Bulletins, giving complete information, prices, etc.

The American Oil Pump & Tank Co.
CINCINNATI, OHIO


EMPIRE TIRES

The Tire

**That Leaves
A Good
Impression**

**Empire Rubber
& Tire Co.**

1627 Michigan Ave., Chicago



It is therefore not surprising that Mr. Anderson was selected from a host of possible engineers.

A NEW DIMMER.

Ira E. Clark, 305 North Fifth avenue, Chicago, has placed a new dimmer on the market, one that is guaranteed to "give you full volume of light without the glare." This device is attached to the light bulb and is protected by the glass in the lamp. It can be adjusted or removed in an instant.

The retail price is moderate and includes a handsome profit for the garage operator. Information will be furnished on request.

NEW ADVERTISING MANAGER FOR EDISON.

Paul Sutcliffe has been appointed advertising manager of the Edison Storage Battery Company, Orange, N. J. Mr. Sutcliffe got his earlier advertising and selling experience in California. On coming east in 1912 he joined the Edison interests, but resigned at the end of a year to become secretary of the W. S. Hill Advertising Company, Pittsburgh, Pa. He has been in the advertising department of the Edison Storage Battery Company for the last year.

WELL FINANCED AND MANAGED.

C. A. Mattison, long connected with the Connecticut Coil Company, of Meriden, Conn., and well known in the ignition field, has been appointed sales manager of the Detroit Engineering Products Company, of Detroit. He states that automobile dealers all over the country are taking the greatest interest in the device, and predicts a sale of 30,000 Paramount Interrupters during the coming season. A national advertising campaign to put the Paramount interrupter before the public will be started at once under the direction of the Gardner Advertising Agency, of St. Louis.

It is understood that the new company

has strong financial backing. Earle Welborn, assistant to the president of the Packard Motor Car Company; Austin F. Bement, secretary of the Lincoln Highway Association; Henry E. Bodman and Frederick W. Tennis, of Detroit, and Glen Buck, of Chicago, as well as others of Detroit's best known and substantial automobile men, are the principal stockholders.

REVENGE.

He tried to cross a roadway and was draped upon a fence.

The motor car that walloped him went gayly honking thence.

They put him in an ambulance and toted him away,

And yet his heart was free from care, his voice was light and gay.

"He may have bumped me on the spine and knocked me forty feet,

He may have walloped me today, and yet revenge is sweet!

He may have spilled me o'er the land," he chortled in his glee,

"But I will get him yet—he buys his gasoline from me."

MOVING GARAGE FOR LINCOLN WAY.

Word has been received at the national headquarters of the Lincoln Highway Association that two enterprising garage-men plan a novel method of getting business during the coming year. Knowing that the most business is to be had where the greatest number of cars travel, they have determined upon the Lincoln highway as the seat of the operations. They mean to equip a 4½-ton truck as a traveling shop and stay on the route of the Lincoln highway between New York and San Francisco all during the summer. They will carry a lathe, drill press, forge, welding outfit and, in fact, everything needed for making all repairs.

DEMAND REPORTS ON GASOLINE STORAGE.

WHEELING, W. VA.—Owners and managers of garages have been notified from the Department of Public Safety that they will be held criminally liable if they fail to immediately comply with the municipal regulations for the storage of gasoline. It is stated that an inspector for the department discovered in one garage about fifty gallons of the highly inflammable liquid in ten-gallon cans under a stairway leading to the exit of a dance hall in which several hundred persons frequently assemble.

The word that went out from the department to the management of that garage was calculated to be such that the menace there would immediately be abated. More frequent inspections of garages are to be made and it is intimated that a prosecution might have a good effect.

Storage tanks placed underground and

equipped with airtight pumps are required in all cases where more than five gallons of gasoline are kept in storage. The penalty for not installing such safe storages and for not keeping securely covered the supplies of five gallons or less is discontinuance of the handling and sale of gasoline. Fires resulting with loss of life, it is said, will make those who do not conform with the regulations liable to indictment and trial for criminal negligence.

TOO MUCH.

"It looks good to me," said the prospective buyer, reaching for his fountain pen and his check book. "The magnetis and the clutchit and the hoosit and the dingus and the whaddayacallit all are in perfect working order, and I get an extra set of tires free, do I not?"

"Yes," said the salesman.

The prospective buyer was about to sign a check.

"Not only that," broke in the salesman, "but you get a quart of gasoline free of charge."

The prospective buyer put his fountain pen and his check book back into his pocket.

"Nothing doing," he said. "It sounds too good to be true."

GARAGE REGULATIONS ARE TO BE STRICTLY ENFORCED.

WASHINGTON, D. C., Feb. 25.—With a view to the strict enforcement of regulations governing the maintenance of garages, inspections of these establishments are being made by Fire Marshal P. W. Nicholson and his assistants.

The regulations provide that sand shall be kept in all garages, machine or repair shops where gasoline is used or stored for the absorption of waste oils or grease. Metal cans with tight fitting covers must be provided for oily waste and grease, which must be removed from the premises or destroyed at least once a day.

Chemical fire extinguishers of such number as may be approved by the chief engineer or the fire marshal must be installed. It is required also that signs bearing the words, "No smoking. By order of the Commissioners, D. C.," be prominently displayed.

The use of stoves, furnaces and open fires is prohibited. No artificial light except electric light is permitted in any building where gasoline or similar fluid is stored or used, unless separated by a fireproof wall or room.

The regulations apply to both public and private garages. The number of garages in the city, according to Fire Marshal Nicholson, is about 1,500, each of which will be visited. The penalty for violation of the regulations is a fine of not less than \$1 nor more than \$40.



Safety Treads

“All in a Days Work” As Told by the Garageman

“It seems to me at times that human nature mostly is human nature,” declared the Man at the Garage reflectively.

“Here is an instance: The salesman of the Z car gravely warned a customer: ‘There is not a garage in Chicago that is capable of taking care of a Z; steer clear of them, build a garage of your own.’

“Well, that car owner with his brand new Z and his brand new \$100 a month chauffeur drove up to my place about six in the evening. He wanted to put up his car temporarily until his own building was in shape to receive it.

“We made a deal of it and the customer left. The chauffeur lounged into my office and remarked: ‘Well, I brought that car here?’

“So you did, I replied amiably, knowing very well what he wanted.

“‘It’s customary to come across with a Five Spot, I believe,’ he continued.

“Not in this shop, I answered.

“He flared up then and said I would ‘Come across’ or he would take the car out and put it in another garage. I informed him he might be able to do that but that he could not make me come across with a Five Spot.

“He took the car out, our stamp showing he left at 6:30 and the car was checked in at three the next morning.

“Early next morning a red hot customer, my latest one, called on the ‘phone and wanted to know what kind

of a dead-fall he had fallen into. He said he had a report at midnight that a man from our garage had been seen joy-riding in his new Z.

“I asked for the name of his informant, and he told me. Then I suggested that he call up a certain garage and he could again get in touch with the man who had favored him with the information, and further, advised him that if it was necessary for me to buy his patronage from his chauffeur I did not want it, even though it only cost me \$5 net, that I was not doing business in that way.

“He cooled down a bit, then he investigated a little and fired the chauffeur that had been wished on him—the car agent received \$25 for getting the chauffeur a job—and we got along in first class shape.

“The next day I went to see that car salesman, handed him my card and informed him that it contained the name of a garage capable of taking proper care of a Z car or any other make of car. Also, I advised him to keep his pet \$25 per job chauffeurs out of my garage.

“Afterward, it seemed that he was almost human, at any rate he endeavored to treat me as though I were a human being, even though I was a garage man.

“That customer’s garage was completed along about Christmas and he sent me a check for my charges and a separate check for \$50 in appreciation of the excellent care I had given his machine. Also, in appreciation of my aid in having opened his eyes to the character of the chauffeur that had been wished on him.

“I took that letter and that check and showed them



“Well? I brought that car in here. It’s customary to come across with a five spot.”

to my friend, the salesman. He seemed surprised, but convinced."

Co-operation In the Electrical Field.

"A man living in the neighborhood of my garage bought an electric and with it he secured a guarantee of 12,000 miles for the batteries.

"I was told the batteries were being inspected monthly by the manufacturer's agents. Our men reported the batteries in poor shape and needing attention. The customer's attention was called to these reports but refused to have the batteries washed. Finally we refused to charge them in the condition they were in. The owner took his car to the salesman.

"The salesman gave the car a cursory examination and shook his head. 'It's too bad. Just another case of neglect by the garage man. Under the circumstances, though, I can do nothing for you. The batteries have not even been washed.



"A red-hot customer called me on the 'phone."

"The owner had heard that term before, had heard it mentioned in connection with a charge of \$40 for the service, which he had refused. He was puzzled. He had been guaranteed 12,000 miles, his car had been run about 7,000 miles and between the garage man and the dealer he was booked to lose 5,000 miles of battery service.

"There had been something said about inspection, also, but he did not understand just what that had to do with the case. In some way he was being swindled. He went back to have it out with the garage owner.

"We had a warm argument. At its conclusion he understood a bit better, but he could not get that 5,000 mile loss out of his mind. The upshot of it was I made him two propositions: The first was to give him new batteries, charging him for the mileage he had secured from the old ones; the second was to fix up his batteries, charging him for the work, and guaranteeing them to run out the 12,000 miles, on condition that he would pay



AUDELS Automobile Guide

A complete treatise on the automobile for owners, operators and repairmen. Answers practically any question relative to the care, repair and operation of a car. Over 500 pages, fully illustrated, including a chapter on Self-Starters and Lighting Systems. Flexible Leather Binding—

Price..... **\$1.50**

Address

Book Dept., Garage Efficiency
608 S. Dearborn Street, CHICAGO



How did you secure your first customer?

How did you secure each succeeding customer?

What provision have you made to secure future customers?

It is the future to which your attention should be directed. The surest and quickest, and at the same time most economical means you can employ to insure a prosperous future, is an electric sign. You have, no doubt, realized this long ago. Let us show you how cheaply your ideas can be carried out.

FEDERAL SIGN SYSTEM (Electric)

**Lake and Desplaines Streets
CHICAGO**

DON'T CUSS.

SAY

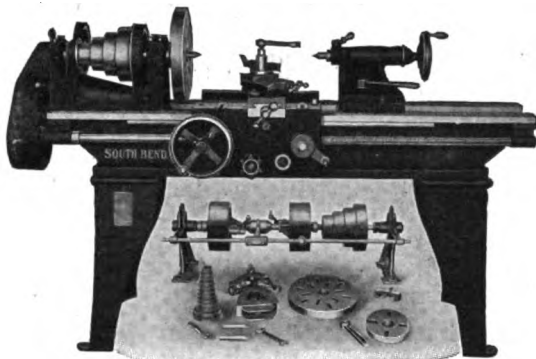
OH! G GEE
TRADE MARK

BE HAPPY

AND

PUT MONEY IN THE BANK

SOUTH BEND LATHES



Regular Equipment, as Illustrated Under Lathe, is Included in Price.

The practical Lathe for the Machine and Repair Shop.

13-Inch Lathe, Complete,	\$185.00
14 " " "	209.00
15 " " "	230.00
16 " " "	294.00
18 " " "	354.00

Straight and Gap Bed Lathes

Send for free catalog giving prices on the entire line.

HOW TO RUN A LATHE

REVISED EDITION NO. 15. PRICE 10 CENTS
CONTAINS OVER 100 ILLUSTRATIONS AND 300 SHOP KINKS
10 Cents Postpaid—Coin or Stamps Accepted

SOUTH BEND LATHE WORKS
510 E. Madison St. South Bend, Ind.

Oxy-acetylene Welding and Cutting

By C. H. Burrows

An exceptionally complete and practical text book on a subject of financial importance to every mechanic and garage owner.

Oxy-acetylene welding has done more to increase the profits of the garage owner than any other device and this splendid book tells all about the subject from start to finish.

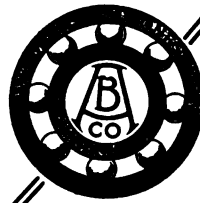
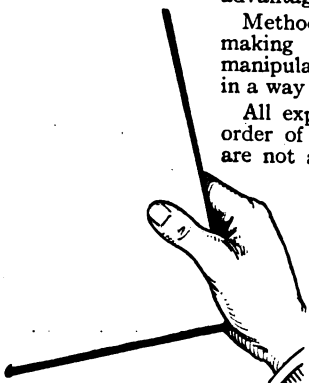
A valuable chapter is given to the several kinds of equipment available, their advantages and disadvantages are explained.

Methods of preparing the work, of making the weld, the details of manipulating the torch are explained in a way that is easily understood.

All explanations are given in the order of their occurrence, and they are not a stale recital of facts, but are highly interesting from cover to cover.

The price—\$1.50 net, or \$2, including a year's subscription to Garage Efficiency. Add 20c for postage.

Book Dep't Garage Efficiency
608 South Dearborn Street
CHICAGO, ILL.



BALL BEARINGS REGROUND

Mr. Car Owner

Do not throw away your worn bearings have them reground at a small cost. Guaranteed equal to new.

Mr. Garage Man and Dealer

Favor your customers by keeping their repairs bills as low as possible

Write for our Catalogue "F"

AHLBERG BEARING COMPANY

2636 Michigan Avenue Chicago, Ill.
New York Cleveland Detroit Los Angeles Boston St. Louis

Money Making Machines for Every Shop

For reboring old worn and scored Ford Cylinders. Enables the small shop to rebore cylinders as well as the largest shops with expensive machinery.

Makes the Ford Motor like new. Reboring Ford Cylinders is a profitable business in any section.

The Davis Milling Attachment and Compound Table

Clamps to any drill press table, with Dovetail Cross Slides, operated with screws and ball cranks, by hand. Saddle is graduated and swivels to any angle. Table is slotted for clamping down work, chuck or vise.

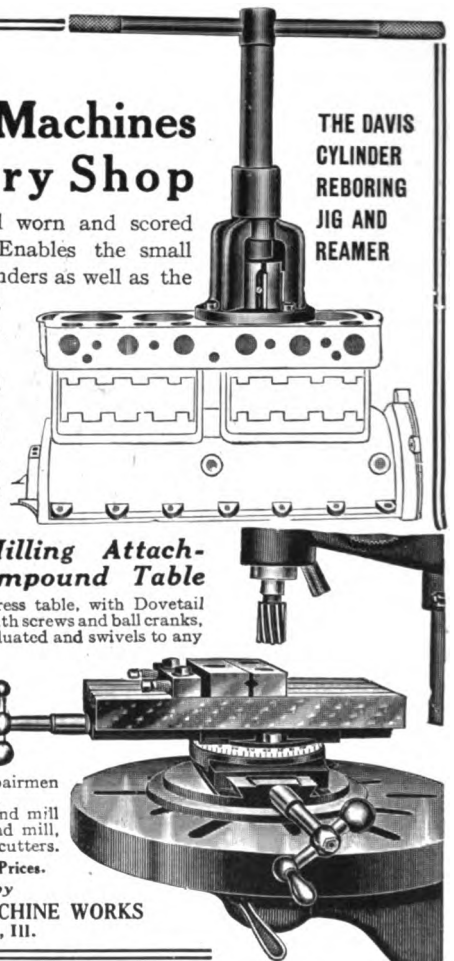
Especially adapted for small shops such as blacksmiths, repairmen and automobile garages.

It will cut key seats and mill cams. For use with end mill, fishtail cutter or formed cutters.

Write for Circulars and Prices.

Manufactured by

THE HINCKLEY MACHINE WORKS
Hinckley, Ill.



THE DAVIS
CYLINDER
REBORING
JIG AND
REAMER

Garagemen

Read What Others Say About
Vanderpool
Vulcanizers

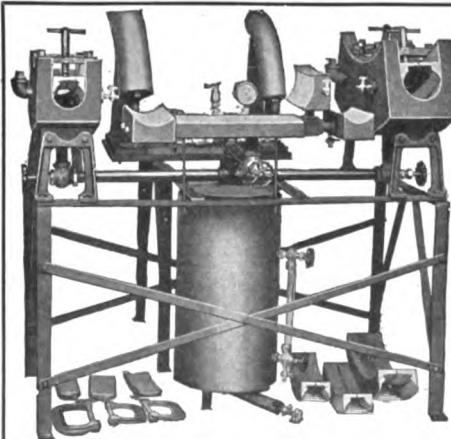
Pleased with Vulcanizer got from you.—O. W. Jordan, Beeville, Tex.

Vulcanizer is working fine.—Earl Gray, Saskatchewan, Can.

The Vulcanizer does very nice work. Am well pleased with it.—J. F. Merino, Winkelman, Ariz.

Catalogue Sent On Request.

VANDERPOOL
COMPANY
Springfield, Ohio



me \$25 a thousand miles for all overrun, the garage to have complete charge of the batteries.

"He took the last named proposition and I believe I will make money out of the deal, for the batteries were in good condition, though damaged by neglect.

"Now this is a case where the garage man stepped in and made good on the manufacturer's guarantee.

"By way of reward, we still hear that the garage man is a crook, and there isn't a garage in the city that is fit to serve as hostler for a one-lunger.

"That may be true, of course, but it is a wonder to me some of these high and mighty car manufacturers do not take a tumble to themselves and lend a hand to bring about better conditions instead of putting emery in the piston chambers and sand in the gears.

"This idea of saddling the sins of the entire industry on the garage man is worse than foolish. It may relieve the manufacturers of the consequences of their own misdeeds, temporarily, but it is building up and encouraging ignorance on the part of the car owning public that works to the disadvantage of all concerned.

"If you will tell this story to some of your friends among the manufacturers of cars, you will have conferred a favor on me. If they can't see the moral of this tale, they are not the business men I believe them to be."

Curing a Sore Spot.

When an organization is out of tune the business builder looks for the sore spot and removes the trouble.

When the parts of a great industry are not functioning properly it is high time for those interested in the foundation and perpetuation of that industry to ferret out the sore spot and do all in their power to place it in a wholesome condition.

Garage owners are endeavoring to improve their business. Co-operation and moral support should be given.

The wise husbandman does not condemn the entire crop because one or more of its elements may have proven unsound. He sorts out the unsound fruit and discards it and uses that which remains. If the car manufacturer is looking for further enlightenment let him do a bit of investigation on his own account.

COST SYSTEM FOR ELECTRIC GARAGES.

Brookings, S. D., Nov. 10.—Editor GARAGE EFFICIENCY: We have been reading with interest various items on the garage accounting features. Some very strong points are brought out and we believe could be put to good advantage in our garage. What we want to know is whether or not you have at hand a good form of stock record card, one designed for garage use, or which could be used for perpetual card inventory. If you have any like illustrated on page 10 of August number, GARAGE EFFICIENCY, we ask that you send us a sample card and prices of same. If you do not carry such in stock, can you give us any information as to where we can be able to secure them?

FRIDLEY AUTO COMPANY,
J. Ray Fridley, Manager.

Judge: "Where have I seen your face before?" Prisoner: "I am the dentist who pulled your tooth last week." Judge: "Fifteen years!"

TIME-SAVING Forms

—at—

MONEY-SAVING Prices

A Few of Our Accounting Specialties That SIMPLIFY GARAGE ACCOUNTING:

Time Cards	Loose Leaf Record Sheets for:
Stock Record Cards	Duplicate Statement System
Triplicate Storage Tags	Ledger—General and Customers'
Material Requisitions	Cash Received Journal
Duplicate Order Blanks	Cash Paid Journal
Duplicate Billing Forms	Purchase Journal
Loose Leaf Binders	Sales Journal

Free Samples and Prices of any of the above forms upon application.

Folder containing full-sized samples of 20 special garage forms 25c.

Refunded on first order
for forms.

"THE AUTOMATIC COST BOOK:"

A BLANK BOOK with full instructions, easy to fill out, so that any garage owner can figure his Profit or Loss EACH MONTH.

CAN BE USED WITH ANY SYSTEM of Bookkeeping, in any garage, large or small.

With blank pages for 15 months' records.....\$2.50

"PRACTICAL GARAGE ACCOUNTING; A Complete System of General and Cost Records for the Garage"—By Horace E. Hollister\$3.65

THE THREE BOOKS LISTED ABOVE FOR.....\$5.75

OUR GUARANTEE: Money refunded on any of our publications proving unsatisfactory and returned within five days of receipt.

GARAGE SYSTEMS CO.

110 N. Main St.
ROCKFORD, ILLINOIS

Pondelick Bros.

Will Pay

\$100

if they fail to duplicate any part of any make of automobile or truck, foreign or domestic, submitted to them. That sum will be paid to the person sending the order.

Parts of any machine can be duplicated in one to three days' notice. All welding is done at their risk. Do not compare this work or welding with that of others. If you have a broken part or parts that others cannot weld or repair, send them to Pondelicks. They increase the durability of many parts — even where the manufacturers fail.

Supply your customers with "Pondelick's" anti-leak piston rings, and you insure them against engine trouble.

They have the largest and best equipped plants in the United States for the repair or reproduction of automobile parts.

Cylinder regrinding, new piston, special casting, heat treated, Pondelick's self-adjusting anti-leak piston rings, new wrist pin, hardened and ground, bushing, made of genuine bronze, including fitting and assembling of connecting rod to piston for **\$15.00**.

Reputation, not competition, determines our policies. Visit our plants and be convinced. Ask anywhere or anybody about our work.

General Factory, 5100 to 5112 West 16th St.
Main Office, Leavitt St. and Jackson Blvd.

Pondelick Bros., Chicago, Ill.

What the San Francisco Garage Men Are Doing

The Garage Owners' Protective Association of San Francisco was organized in the early part of 1912 with the object of correcting existing business errors and to create in the minds of our customers more respect and confidence in our work.

From the start our association has worked on educational lines only. At no time in our history have we ordered a member to do this or that. When it was advisable that the prices on any service or article be uniform, the matter was suggested by a resolution with the result that these resolutions were uniformly lived up to, and the members did not feel that the officers of the association were trying to dictate their business principles.

The first president elected, John B. Kelly, is still in the chair, as is Wm. P. Crowley, chairman of the Executive Board, and A. D'Ettel, secretary and treasurer. This seems to prove that the management has been popular and along advanced ideas.

Originally there were eight members, today the membership consists of 56 garages, 20 associate and country members, a total of 76 members, and the membership is increasing every month.

Interesting the Membership.

In our first year it was difficult to get members to attend the meetings, and a plan was involved as follows: Meetings were held once a month, and at every meeting a good dinner was served, costing the members nothing, as the bill was paid out of the association funds. This brought out the members and by far the greater good achieved has resulted from the closer acquaintance made at these dinners. There is one great danger in holding the dinners with business meetings: the dinners must be served quickly and immediately thereafter the association must get down to business. The officers of the association have never allowed these dinners to be monopolized by the people desiring a good time only, and it is recognized by the members that the main object of the dinners is to get well acquainted with your neighbor, then to get to business.

During the dinner, some prominent man in the civic affairs of San Francisco gives a talk to the members, which has a tendency to broaden our outlook upon life and business matters. Experts on various matters have told us how to properly purchase various supplies, so that today the average garage owners are well posted business men.

Limited Association Buying.

Our activities seem to cover everything attempted by other associations throughout the country. Our purchasing bureau confined itself to the purchase of one large item, that is, gasoline. Prices with special discounts have been made to our association on a great many articles. To such an extent have these discounts been made that when special bids are called for on any article very little saving is made, and we find that a better feeling

exists when the market is open to all jobbers and they recognize that this condition will last only as long as their prices and terms to our members are fair.

One of the garages acts as an Employment Bureau, where all applicants are directed and when help is needed, all employment is sent out from this bureau.

Collection Bureau.

The Credit Bureau is incorporated. The secretary sends out lists of the names of undesirable customers, publishing this list from time to time. Only the secretary knows what garage reports the bad customers. The bureau handles such collections as the members hand in; a collector is used who specializes on automobile collections and when he is unable to collect the account, the matter is turned over to the association attorney who takes some definite action at once. This method has been a success, in that the general public realizes that the bureau will only stand for just so much postponement with the result that there is comparatively few accounts turned in for collection, whereas in the beginning of this bureau's history it was almost swamped with accounts.

Special insurance prices have been made to all members of the association, saving figures of about 25 percent a year over the ordinary rates.

Stocking and Selling Accessories.

Garage members are continually advised of the best way to display accessories and a constant watch that all garages are kept in a cleanly condition. We have noticed

along these lines that when the important garages of the town keep their place looking as a properly run garage should, it is very easy to get the rank and file to follow.

A great deal of this is due to the Motor World and GARAGE EFFICIENCY for the work they have done along these lines, and we make special efforts to have each member subscribe for both magazines.

The office of the secretary is in constant communication with other associations throughout the country, exchanging ideas and experiences, thereby keeping the association abreast of the best thoughts throughout the country.

The True Basis of Success.

We have tried to build our individual success on the services rendered our customers, not on cut rate prices, and we think that our customers appreciate this fact, as is proved by the garages offering the best services at even high prices, are the most successful.

Cost Accounting.

One of the important factors in our success has been our accounting. The secretary being a public accountant has been able to demonstrate the necessity of cost accounting. Most of the members have modern accounting systems installed, and are able to tell each month just what the profits are, what departments are making profits, and their overheads distributed scientifically. This, in a great measure, prevents price cutting, as a member can see where he begins to lose money the moment he begins

KENNEDY Auto Storage Covers

furnish efficient protection for cars in dead storage. They are made of strong, heavy paper, properly reinforced, and in standard sizes to fit any car.

Made only by

The Kennedy Car Liner & Bag Co.
SHELBYVILLE, IND.

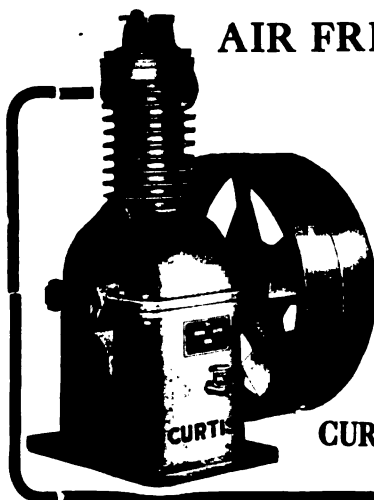
We Grind Cylinders

By specializing, we make ridiculously low prices on regrinding cylinders.

Our prices include new pistons and rings. Work neatly and promptly done and absolutely guaranteed.

Write for Particulars

ALLEN & CURTISS CO.
MISHAWAKA, IND.



**AIR FREE FROM OIL—AT CORRECT PRESSURE
FOR EACH SIZE TIRE**

THE CURTIS GARAGE AIR PUMP

With its controlled splash lubrication will guarantee clean air—the compressor also has unloading device, air cooling device, inspectible valves, bearings adjustable for wear and is made in five sizes.

Curtis Correct Pressure Tire Filling Station

insures your customer's tires—gives them longer life and increased mileage—fewer blow-outs and fewer punctures and places the wear where it belongs.

Write your jobber for full particulars or write us.

CURTIS PNEUMATIC MCHY. CO., 1597 Kienlen, ST. LOUIS, MO.
NEW YORK OFFICE, 530 CHURCH ST.



Please Mention GARAGE EFFICIENCY, when Writing to Advertisers.

to cut prices. This accounting has had much to do with not only the individual success, but the success of the association.

We have had many battles to fight and a great many are in view that must be won or lost. The city laws are none too kind to us. The governor vetoed our Garage Lien Law. We probably have the troubles and tribulations that all associations seem to have, and we hope that we are on the right road, believing that in unity there is strength, that in service to our trade rather than in bargain sales, rests our profits and hope for success.

A COPY FOR YOUR REPAIR SHOP.

If there is real team work in your organization you do not change your policy without thoroughly explaining the change to your aids and employees to whom you must intrust the work of carrying out that policy.

If your employees are loyal and are working with you for the greater success of your business—in which they have almost as direct and personal an interest as you have—they must be thoroughly posted and thoroughly competent if they co-operate intelligently.

GARAGE EFFICIENCY will teach them the broader and more important aspects of your business. It will keep them in touch with the big things that are under way and the still bigger things that are being undertaken. The repair department which usually inhabits its own domicile should have its own copy of this paper.

It is going into a great many repair shops now, but the great question is, is it going into your repair shop?

Separate subscriptions should be sent in and this extra copy of GARAGE EFFICIENCY should be addressed to the "Repair Shop."

It is not entirely sufficient that you subscribe for a copy and let it go at that. Take the first issue in its original wrapper, call the repair crew together and explain your object in buying the paper for them, explain, also, that a part of the paper is to be devoted wholly to their branch of the business. Urge them to read that department and to contribute to it, ask questions, to answer questions others present, to suggest improved methods, improved devices and generally to enliven their interest in their work.

The investment is very small. The results from this work should be very great. Will you be the first to place GARAGE EFFICIENCY in your repairmen's hands to the end that your repair men will become more efficient and produce greater profits?

There is a right road and a wrong road to Profitville. GARAGE EFFICIENCY is a chart showing the right way, which you should travel, and the wrong way, which you should avoid. There will be less said about the wrong way than the other way, because GARAGE EFFICIENCY believes it can be of service to you in that way more than in any other.

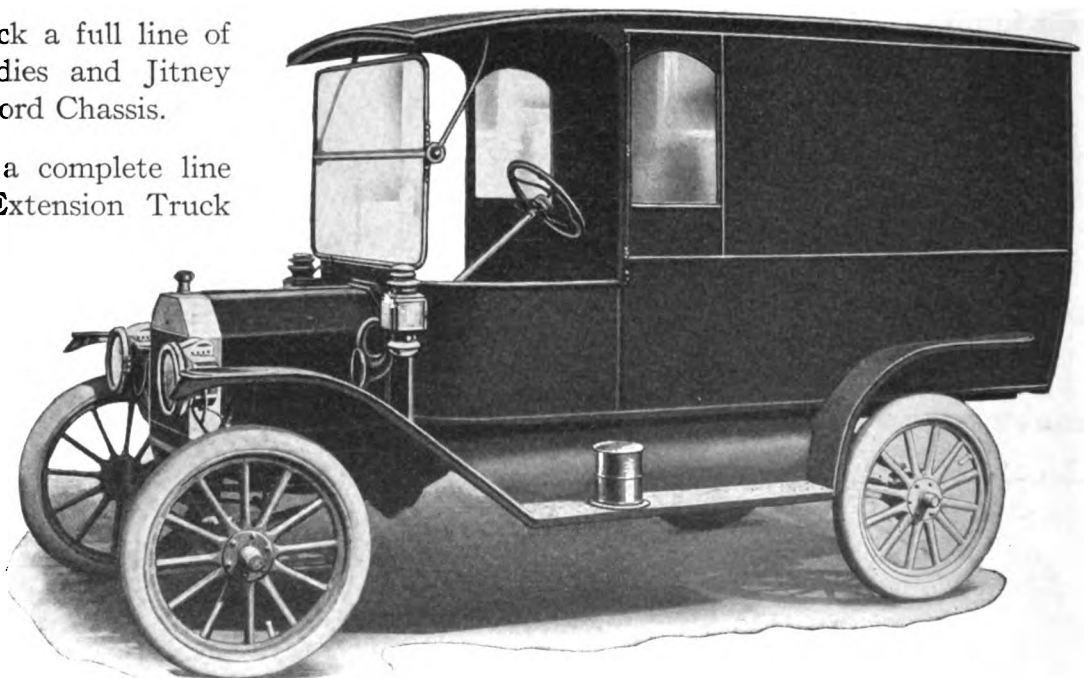
CENTURY COMMERCIAL BODIES

We carry in stock a full line of Commercial Bodies and Jitney Busses for the Ford Chassis.

We also make a complete line for the Ford Extension Truck or any other chassis.

Write for our twenty-page Commercial Body Catalog and Dealers' discounts.

We will make you some attractive prices.



CENTURY AUTO TOP & SUPPLY COMPANY

44 to 56 East 26th

CHICAGO, ILL.

Please Mention GARAGE EFFICIENCY, when Writing to Advertisers.

REPAIR WORK IN KANSAS.

That 25 percent of Kansas smithies either are being turned into automobile repair shops or are adding motor car repair equipment to their machinery was gleaned from the annual meeting of blacksmiths in Independence by the Wichita men who have returned from it.

That the blacksmiths, horseshoers and wagonmakers of Kansas are keeping pace with modern business methods along other lines is indicated by the following mottoes of the convention, suggested by the retiring president, P. L. Buckley, of Lyons:

"Business is very sensitive. It goes only where it is invited and stays only where it is well treated.

"Talk on the merits of your work; don't knock on your competitor.

"Business is a game but when you get in the game, play fair.

"Do your work well. People like to pay a good price for good work.

"Your best asset is a membership in the Kansas Association.

"Don't censure your brother craftsman until you are right yourself."

These mottoes are not patented. Garage men may use them.

Consult the advertising columns of GARAGE EFFICIENCY before buying repair shop equipment or accessories.

THE NEW MICHIGAN MODEL.

Designed by L. C. Steers and other high association engineers of Michigan.

AUTO REPAIRING "EXTRA HAZARDOUS."

Blacksmithing and automobile repairing will be classed as extra-hazardous occupations after January 16, 1916, according to a resolution adopted by the industrial insurance commission of Washington, bringing all blacksmith shops and garages doing repair work under the compensation act at that date.

The large blacksmith shops where much machinery is used and some of the garages are now under the act. The resolution covers these two industrial fields entirely and wherever men are employed in these shops the owners must pay premiums into the fund.

Another Definition.

"Pa, what is affectation?"

"Affectation, my boy is carrying three extra tires on an automobile that never gets more than four blocks away from a garage."

Accountants—Auditors—Systematizers

We are making a specialty of Garage Accounting Systems. We are prepared to make audits, to undertake investigations to prepare statements, to devise and install the kind of accounting system you require.

Our Terms Are Reasonable

We can maintain books at a cost to you of \$10 to \$25 per month. All dealings held in strictest confidence by capable and trustworthy, expert accountants.

Investigate, then let us quote you prices.

Standard Audit Company

(Not Inc.)

608 So. Dearborn St.

Room 372

Chicago, Illinois

Modern Garage Service

WHETHER it be an electric or gas garage nowadays, many things are expected by customers that were not thought of a few years ago. Garage operators have been compelled to assume obligations and liabilities in the handling and delivering of cars to customers they never dreamed of. For instance, hikers were only for electrics just a short while back, now gas garages use them to hold their trade. We know hikers have accidents causing sometimes severe losses to the garage owner.

Our **ILLINOIS GARAGE OWNERS' POLICY** completely covers the needs of the garage owner, even with a livery in connection. It is but one policy but it covers **NINE** hazards.

Write us for further information.

AMERICAN AUTOMOBILE INSURANCE COMPANY

HARRY M. McCONNELL, General Agent

516 National Life Bldg.

Chicago, Illinois

HERE'S A BOOK YOU NEED

A complete Ford Instruction is also added.

It teaches you the principle, construction, repairing and adjusting of all cars.

Read the subjects treated below and bear in mind each and every subject is fully treated in a simplified manner with clear illustrations.

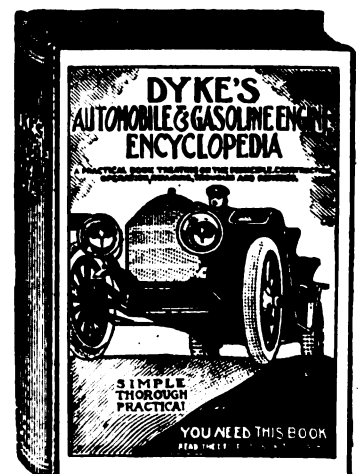
Step by step the book takes you through construction engines; 4, 6, 8 and 12 cylinder, carburetion, valve timing, ignition timing, and all up-to-date electric systems—repairing, adjusting, etc. The repair subject is very complete and extremely useful. Hundreds of illustrations on this subject alone.

This book is compiled by A. L. Dyke, the man who invented the first auto supply business, manufactured the first valve feed carburetor, and published the first practical book on automobiles in America.

The book is endorsed by Elwood Haynes, Charles Duryea, Lord Montagu (founder of boulevards in London), Barney Oldfield and other notables. It is read by the faculty of five Automobile Schools.

READ THE BRIEF TABLE OF CONTENTS BELOW

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| (10)—Firing Order. | | | (38)—Insurance, Laws, License. | (49)—Brief Treatise on Other Internal Combustion Types of Engines. |
| | | | (39)—The Automobile Salesman. | (49a)—Ford Instruction. |



Free Supplement — with each encyclopedia (after Feb. 15, 1916)—144 pages, part in two colors, treating on the principle, construction, care and adjustment of Packard Twin Six, King Eight, Willys-Knight, Maxwell and Ford.

Price \$3.00 (Add 25 cents if wanted prepaid)

SPECIAL This book, prepaid, and one year's subscription will be given for \$3.50.

If you are already a subscriber, then give the subscription to a friend and get the book.

Address Book Department, Garage Press, Transportation Building, 608 So. Dearborn Street, Chicago, Ill.

Please Mention GARAGE EFFICIENCY, when Writing to Advertisers.

VOL. VI.
 APRIL, 1916.
 NO. 4.

GARAGE EFFICIENCY

THE NATIONAL GARAGE MONTHLY

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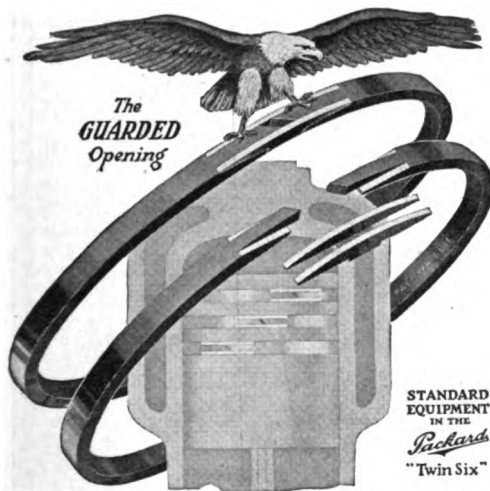
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American Automobile Manufacturers—Especially those who insist upon Internal as well as External Mechanical Superiority—unreservedly endorse

BURD HIGH COMPRESSION RINGS

And either employ them as Standard Factory Equipment or suggest their use in Service Station replacements.

The "Guarded Opening"—an exclusive Burd Ring Feature—absolutely prevents the leakage of gas and lubricating oil. Every atom of gas is utilized in the production of power. Every drop of oil is made to serve its purpose as a lubricant. Not a vestige of water accumulates in the crank case. Not a trace of carbon on spark plug, cylinder wall or piston head.

The Burd Ring installation insures a properly lubricated motor, more power, more speed, minimum gas and oil consumption, and an entire freedom from the many aggravating engine troubles so needlessly prevalent. These are the features that have brought about the approval of Burd Rings by automobile engineers. Their findings should be worth your consideration.

BURD HIGH COMPRESSION RING COMPANY, Rockford, Illinois

Boston, Mass.	899 Boylston St.	Kansas City, Mo.	215-217 Rialto Bldg.	Philadelphia, Pa.	684 N. Broad St.
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RAYFIELD

CARBURETORS

Saving Gasoline- Money for 1257 Buick Six Owners

**FINDEISEN & KROPF
MFG. CO.,**
2135 Rockwell Street,
CHICAGO

Branches:
1140 Michigan Avenue
CHICAGO
1902 Broadway
NEW YORK
1191 Woodward Avenue
DETROIT

Just to illustrate how motorists everywhere are putting Rayfield carburetors on their cars—

In the five months up to March 25th, 1257 owners of 1916 Buick Sixes had installed Rayfield carburetors on their cars.

And the rush of Buick owners for Rayfield is increasing daily.

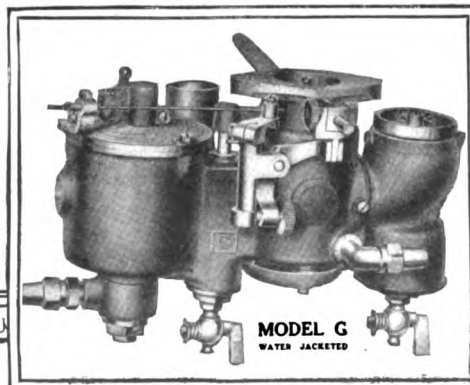
Why these many purchasers of the Rayfield for new Buicks? Why are Rayfields going on so many demonstrators and new and old cars?

ECONOMY, for one reason!

All these Buick owners have increased their gasoline mileage 20% to 50%. That means money-saving; it is true economy.

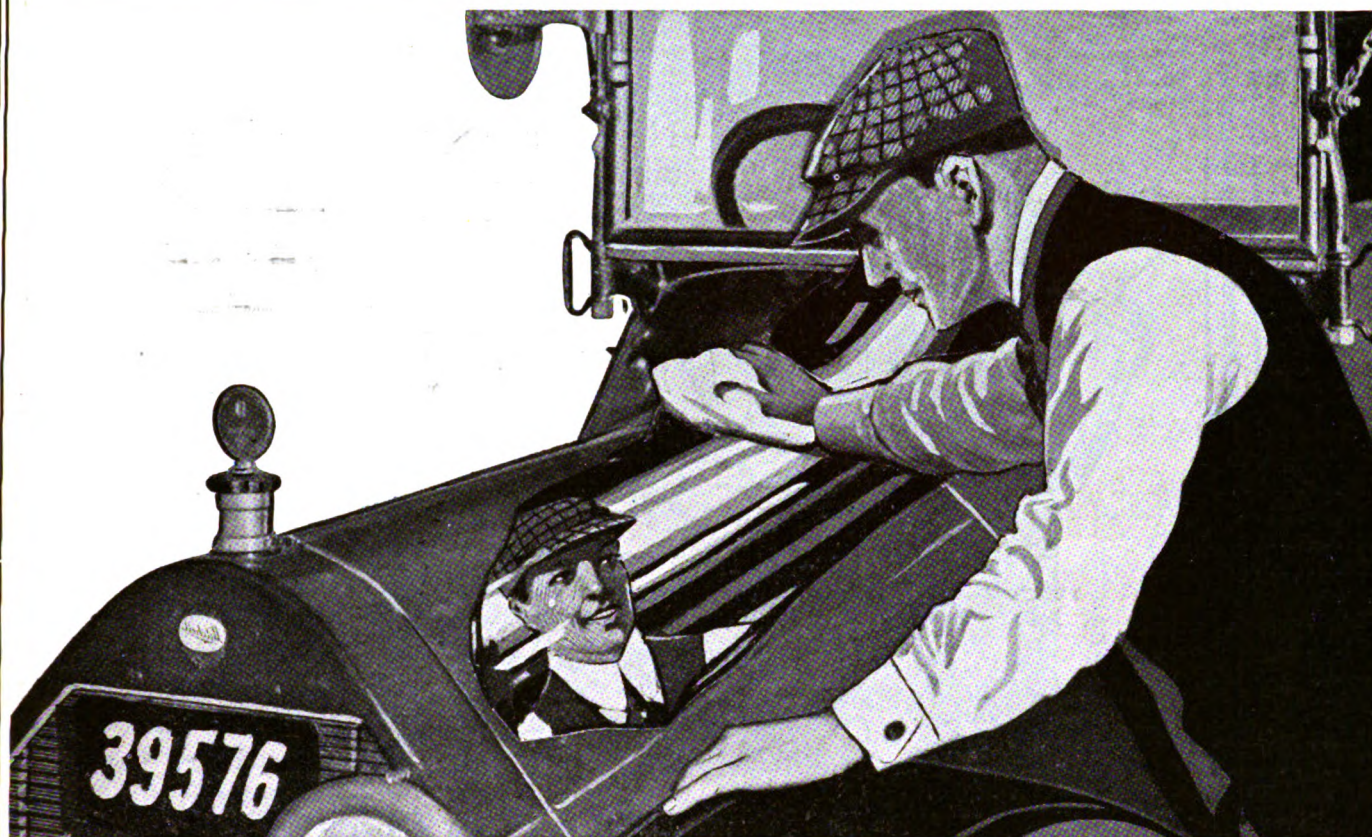
This you can do also, whatever car you drive. The Rayfield is the best, the most economical carburetor in the world.

Get a Rayfield. Always you can have 30 day trial. *You can't afford* to motor without the Rayfield carburetor. Order through your dealer or write us.



All Rayfield carburetors are guaranteed to give complete satisfaction or your money back. You to be the judge. 30 day trial in every case.

Please Mention GARAGE EFFICIENCY, when Writing to Advertisers.



Those Dirty, Grimy Hoods

can be made just like new. You or any of your boys can easily do it—it's as simple as polishing a pair of shoes. All you need is Johnson's Cleaner and Johnson's Prepared Wax.

JOHNSON'S CLEANER

really cleans. It entirely removes all stains, discolorations, scum, road-oil, tar and grease from body, hood and fenders. Even those spots that are ground in—mud freckles—and surface scratches

which you thought were permanent—will disappear like magic under Johnson's Cleaner. And it doesn't injure or scratch the varnish—simply cleans and prepares it for the wax polish.

JOHNSON'S PREPARED WAX

is the standard polish for bodies, hoods and fenders. With it cars can be kept as beautifully polished as when they came out of the factory. Johnson's Prepared Wax imparts a thin, protecting coat over varnish, preserving it and adding years

to its life. It prevents checking and cracking—sheds water and makes a "wash" last twice as long. Johnson's Prepared Wax imparts a polish so hard, dry and glasslike that it cannot gather dust.

Extensively Advertised

Johnson's Cleaner and Prepared Wax are the only products extensively advertised for cleaning and polishing cars. Our advertisements are appearing in practically every motor paper published—also in the leading magazines and weeklies—*Saturday Evening Post*, *Collier's*, *Literary Digest*, *Christian Herald*, *McClure's*, *American*, *Munsey*, *Everybody's*, and a great many other publications too numerous to mention. You are sure to have a demand for these products. Stock now and be prepared to take care of your customers.

DEALERS!

You can "get in strong" with your customers and make a bunch of extra money if you'll adopt the "JOHNSON METHOD"—clean two or three of the cars entrusted to your care with Johnson's Cleaner and then polish them with Johnson's Prepared Wax—and see if your customers object to paying a GOOD price for having the appearance of their cars improved 50%. And it's a very easy job—any of your boys can do it in their spare moments.

Use Coupon for Trial Packages

S. C. JOHNSON & SON, Racine, Wis.

GE4

Please send me free and postpaid a trial can each of Johnson's Cleaner and Johnson's Prepared Wax—sufficient for cleaning and polishing a large car—also dealer's proposition.

NAME

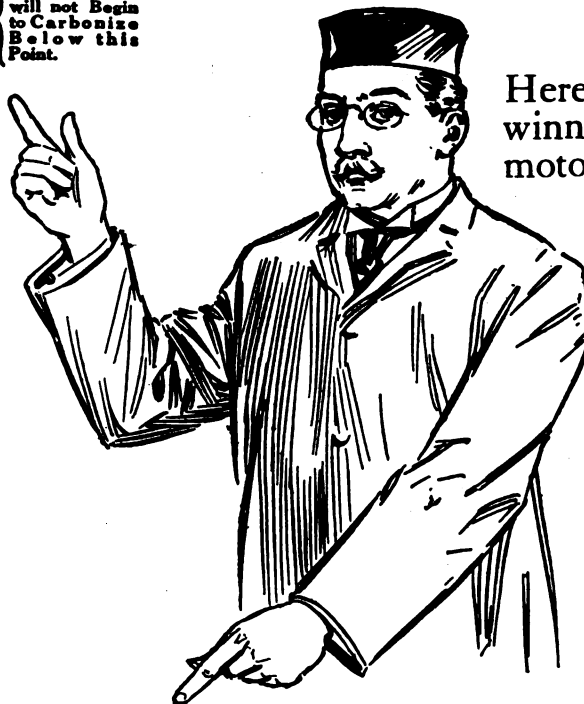
ADDRESS

CITY and STATE.....

My Accessory Jobber Is.....

410°

Viscomotor Oil
will not Begin
to Carbonize
Below this
Point.



365°

Many Oils Be-
gin to Carbon-
ize Here.

350°

This is the Or-
dinary Heat of
a Motor.



Safety First for Your Customer's Motor!

The margin of safety between the heat of the motor and the temperature at which Viscomotor Oil carbonizes is 55 degrees more than the margin of safety in average oils. Most oils begin to carbonize at a temperature only 15 degrees above the heat of your motor at moderate speed, and *completely burn* before Viscomotor even begins to carbonize.

Perhaps that is why you are not getting all out of your motor that you should get. Perhaps that is the reason why your piston and your piston rings wear out faster than they should—why your cylinder scores. Why you have heavy, needless repair bills to meet.

Specials

March 17 to April 17.
Write today for our special
offer of lubricating and
transmission oils and cup
grease, **for Dealers only.**

DEALERS!

Here's a chance to add another winning seller to your line. Viscomotor, the Anti-Carbon Oil, heavily advertised now, is rapidly winning hosts of friends. People will be looking for it in your town. Get this new business for yourself. The first to capitalize on our efforts will have a big advantage. Write us today for detailed information. We turn inquiries over to dealers as fast as we get representation. Orders filled by us are credited to our dealers.

Viscomotor

The Anti-Carbon Oil

Lubrication Specialists

For more than a quarter of a century we have devoted ourselves to studying and solving problems in lubrication. Our engineers and scientists are national authorities. Viscomotor is the final triumph of their skill. It is made in five formulas, to meet every need. Let us prescribe the one that will end *your* troubles and make motoring a new pleasure. Tell us your problem and difficulties. Thousands are using Viscomotor who couldn't be lured to go back to old hit-or-miss methods. Satisfaction guaranteed or money refunded.

Viscomotor Frigid Oil flows freely in cold weather.

Viscosity Oil Company, Dept. 000, Chicago

America's Lubrication Authorities

Main Office and Plant:

1101-1103 W. 37th St., CHICAGO, ILLINOIS

Makers of Viscomotor Oil, Visco Transmission Oil
and Creole Cup Grease

Branches in Nine Cities

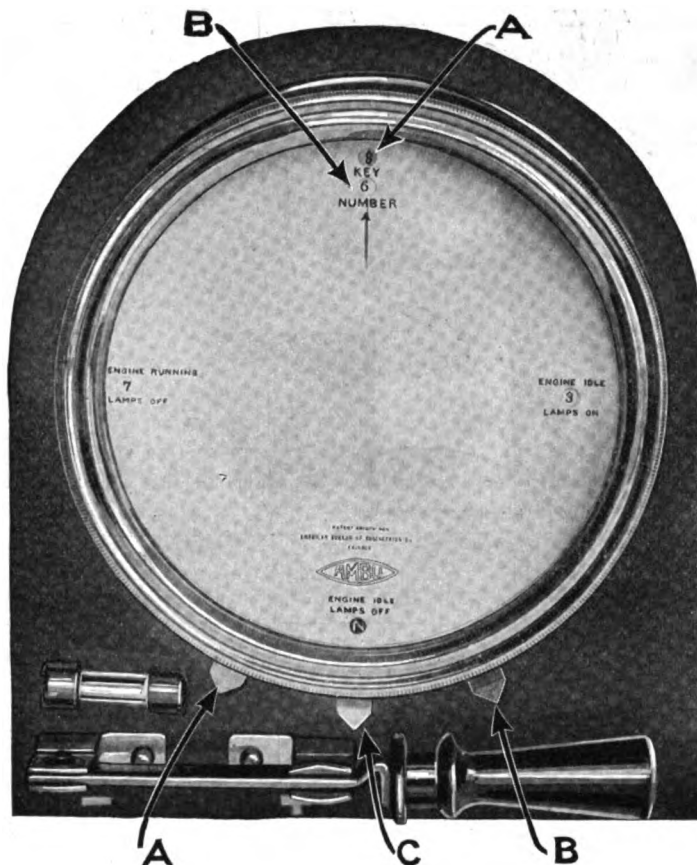
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Duluth, Minn., 726 E. Fourth St. Tel.: Melrose 929, Grand 929
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Telephones: N. W., Main 908; T. S., Center 908-479
St. Paul, Minn., 152 E. Sixth St.

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Des Moines, Iowa, Ninth and Mulberry Sts. Tel. Walnut 480

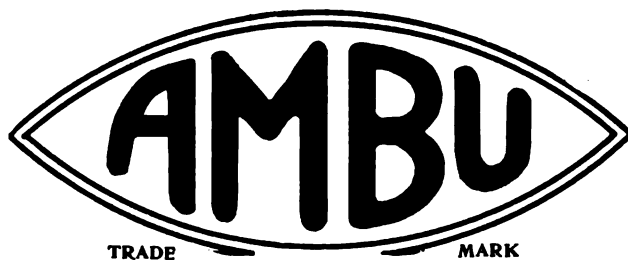
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*There is nothing Radical,
Untried or Unproven in
the Construction of this
Instrument.*

Detects—Locates
Accurately and
Quickly trouble in
any American
made Starting
and Lighting Sys-
tem used as stand-
ard on any Amer-
ican made car—
from the time of
the first installa-
tion, 1912.

Autolite, Remy,
Bijur, Rushmore,
Delco,
Westinghouse,
Dyneto, Entz,
Gray & Davis,
Splitdorf, Aplco,
North East, U. S. L.,
Wagner, Ward,
Leonard,
Adlake, Deaco, Disco
Allis-Chalmers,
Bosch, Jesco,
Esterline, National,
Leece-Neville,
Simms-Huff



TRADE MARK

Electric Trouble Shooter

The addition of a self contained volt-ammeter to Ambu now enables us to offer an instrument which in its scope answers every requirement of a garage or repair man—for electrical repair work on automobiles and for all testing purposes.

Ambu is a combination of elements that have been used by expert electrical repairmen for years when it is necessary to make quick and accurate tests. Ambu has some of the characteristics of an ammeter, some of a voltmeter, and in addition, the improvements introduced and patented by the American Bureau of Engineering. Yet it is neither an ordinary ammeter, voltmeter or anything else heretofore used. Because it is a new thing, we have adopted a new name, "Ambu."

The connection of Ambu to the battery of a car in trouble allows this instrument to indicate immediately what kind of trouble is present. A principle is used that allows all faults to be divided into eleven classes, these classes caring for whatever trouble may be present in the electrical systems of the car. Each class of trouble is designated by a number and these numbers appear on the dial of Ambu.

A reference to the chart whose number appears on the dial gives the trouble—its location and its remedy.

AMBU SERVICE

AMBU Service consists of AMBU wiring diagrams—showing the exact layout of every electrical system as applied to automobiles; covering 400 or more cars.

AMBU Repair Charts—giving concise and practical working information and complete instructions on how to make repairs quickly and positively.

AMBU Service Bulletins keep you posted on all changes, additions and improvements which may be made in the various systems.

AMBU Engineering Advice—to help you out of any unusual difficulties.

AMBU Instruction Book—compiled by experts, gives you a complete working knowledge of the various makes and types of electrical starting and lighting systems.

The complete AMBU Service contains information impossible for you to obtain in any other way—classified, systematized, readily accessible, and filed in a handsome, substantial metal case with lock—a compact authoritative service.

A Suggestion—A substantial increase in the price of Ambu is necessary—it is advisable that all repair men contemplating the purchase of Ambu place their orders with delivery date specified in order to assure themselves of the present scale of prices.

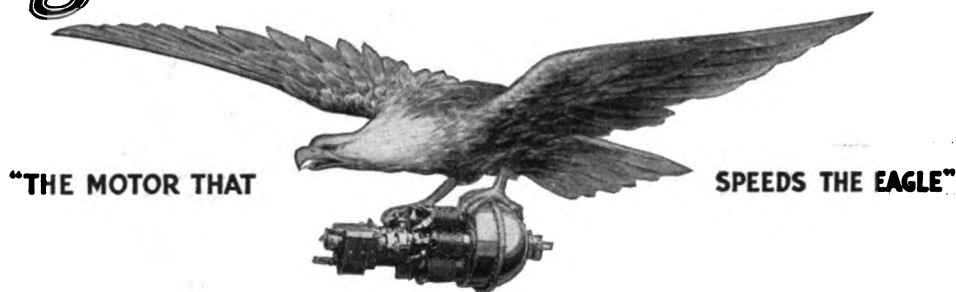
Write today—Use the convenient coupon.

American Bureau of Engineering, Inc.

1018-38 Wabash Ave. Automobile Dept. CHICAGO, ILL.

COUPON—Tear Off and Mail Today
American Bureau of Engineering, Inc., Chicago, Ill., Trouble Shooter and
advertisers—1018-38 Wabash Ave., Chicago, Ill., Trouble Shooter and
the complete details, prices etc., of your AMBU Service.
Name.....
Address.....
City.....
State.....

The Eagle-Macomber Motor Car Co.



A Car You Can Afford to Own



Three-quarter side and front view of Model 1-A Eagle Light Car, Roadster, equipped with 18 H. P. Macomber Rotary Air-cooled Engine. Photo taken on 18th St., Chicago; the residence of the late Geo. M. Pullman in background.

Luxury and Economy a Combined Reality

View of Model 1-A Eagle Light Car, Roadster, equipped with an 18-20 H. P. Macomber Rotary Air-Cooled Engine. Almost total absence of vibration. Gasoline consumption more economical than reciprocating engines of equal weight and power. Price with Standard Equipment \$700.00.

SPECIFICATIONS—Motor, Macomber Rotary. Cylinders, $3\frac{1}{2}$ bore, $3\frac{1}{2}$ stroke. Cooling, Air. Ignition, Atwater Kent. Electric starter. Clutch, multiple disk. Transmission, selective sliding gears. Rear axle, full floating. Front axle, I beam, drop forging. Wheel base 108". Gear shift, center control. Wheels, extra heavy second growth hickory or wire wheels at slightly increased cost. Fenders, crown type. Springs, Cantilever type in rear, half elliptic front. Tires, 30x3 $\frac{1}{2}$. Detachable rims.

STANDARD EQUIPMENT — This includes all electrical equipment, lamps, one-man top, windshield, Stewart-Warner Speedometer, electric vibrator horn, foot rail, foot accelerator, one extra rim which is held in place by special tire holder, tools, jack, pump and tire repair outfit.

Essential and Superior Features of the Power Plant

The Macomber Rotary Air-Cooled Engine is not only smooth running (were it set on end instead of horizontally with a two-point suspension, it would spin as calmly as a whirling top) very economical in fuel consumption and light of weight, but its cylinders and other parts are nearly all interchangeable. A blown out piston head means nothing more than about five minutes work of the driver to place a new one out of spare parts in his box. Such a change has been made in less than that time. On account of the centrifugal force the cylinders do not foul easily, but when cleaning becomes desirable they can easily be detached and cleaned in a comfortable place. This engine can be taken apart and re-assembled while mounted in the car, no derrick being necessary. A simpler or more fool-proof engine we have never seen. It develops its full rated power, another important feature of interest to the motorist.

Write for further particulars. Dealers' applications considered in the order of their receipt. Deliveries to begin about April 1st Address, Sales Department,

Eagle-Macomber Motor Car Co., Sandusky, O., U. S. A.

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ITS AFFILIATIONS.

National Automobile Trade Association—President, Robert Bland, Evanston, Ill.; treasurer, F. A. Bean, Detroit, Mich.; secretary, R. A. Wilson, 208 S. La Salle St., Chicago, Ill. Directors—Jacob Friedman, Dyersburg, Ia.; E. T. Jones, Akron, O.; L. C. Steers, Detroit, Mich.; W. B. Taylor, Rockford, Ill.; K. R. Vaught, Indianapolis, Ind.

MICHIGAN.

Michigan Automobile Trade Association—President, L. F. Bertrau, Big Rapids, Mich.; vice-president, L. C. Rivers, 147 W. Main St., Battle Creek, Mich.; treasurer, C. F. Strong, Coldwater, Mich.; secretary, L. C. Steers, 518 Grand River Ave., Detroit, Mich.

Battle Creek Garage Owners' Association—President, Frank Palmer, Battle Creek, Mich.; vice-president, H. Phillips, Battle Creek, Mich.; secretary, H. E. Petrie, 99 W. Main St., Battle Creek, Mich.; treasurer, Geo. Williams, Battle Creek, Mich.

Kalamazoo Automobile Trade Association—President, E. P. Sumption, Kalamazoo, Mich.; vice-president, Harry Scott, Kalamazoo, Mich.; secretary, W. H. Wood- en, 1328 Portage St., Kalamazoo, Mich.; treasurer, H. L. Triestram, Kalamazoo, Mich.

OHIO.

Ohio Automobile Trade Association—President, F. T. Price, Chamber of Commerce Bldg., Columbus, O.; vice-president, E. T. Jones, Akron, O.; secretary-treasurer, A. J. Peebles, Columbus, O.

Lehigh Valley Automobile Trade Association—President, Geo. W. Hunsicker; vice-president, A. J. Meyers; secretary, E. T. Satchell, Allentown, Pa.; treasurer, Walter Wink.

Crawford County Automobile Trades Association—President, H. A. Paxton; vice-president, E. T. Rayl; secretary-treasurer, E. R. Lewis, Bucyrus, O.

Columbus Garage Owners' Association—President, F. T. Price, Chamber of Commerce Bldg., Columbus, O.; secretary, J. L. Steele, 248 N. 4th St., Columbus, O.

ILLINOIS.

Garage Owners' Association of Illinois—President, W. W. Ingram, Rutland, Ill.; vice-president, Wm. Rudd, Chicago; treasurer, H. E. Halbert, Chicago; secretary, J. C. Thorpe, Urbana, Ill.

Garage Owners' Association of Woodford County—Secretary, E. Gray, Minonk, Ill.

Tri-City Automobile Trade Association—Secretary, R. E. Beedee, Davenport, Ia.

Chicago Garage Owners' Association—President, H. E. Halbert, 606 Independence Blvd., Chicago, Ill.; vice-president, Harry Salvat, 740 E. 51st St., Chicago, Ill.; treasurer, B. F. Campbell, Chicago, Ill.

Automobile Trade Association of Champaign County—President, G. G. Goll.

IOWA.

Iowa Retail Auto Dealers' Association—President, J. Friedman, Dyersville, Ia.; vice-president, D. O. Babcock, Gowrie, Ia.; secretary-treasurer, S. L. Seeman, 505 Observatory Bldg., Des Moines, Ia.

CALIFORNIA.

Garage Owners' Protective Association of San Francisco—Secretary-treasurer, A. D'Ettel, 593 Turk St., San Francisco, Cal.

OTHER ORGANIZATIONS.

Electric Vehicle Association of America, 1000 Chestnut St., Philadelphia, Pa.—President, W. H. Johnson; vice-president, E. S. Mansfield; treasurer, H. M. Edwards; secretary, A. Jackson Marshall.

Garage & Repairmen's Association of California, Inc.—Secretary, D. P. Oatman, 666 Walker Auditorium Bldg., Los Angeles, Cal.

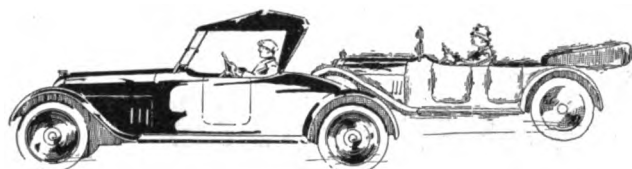
Iowa Automobile Business Association, 409 Observatory Bldg.—President, J. C. Bernhard; vice-president, H. C. Carr; secretary, N. T. Miller; treasurer, A. R. Rockwell.

United Garage Associations of New York State, Inc.—President, Wm. Haradon, New York City; vice-president, Jno. Van Benschoten, Poughkeepsie, N. Y.; treasurer, Edward W. Leahy, Albany, N. Y.; secretary, Geo. F. Kaiser, 52 Broadway, New York.

Washington Motor Trades Association, 205 White Bldg., Seattle, Wash.—President, W. S. Pearne; vice-president, Newton Foster; secretary-treasurer, J. W. Johnson.

Oregon State Dealers, Garage & Repairmen's Association—Secretary, W. F. McKenney, 55 First St., Portland, Ore.

Clinton Automobile Dealers' Association—President, A. A. Daehler; vice-president, G. P. Lamberton; secretary-treasurer, O. T. Roberts, Clinton, Iowa.



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16a

The Exponent of Co-operation

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WESLEY T. CHRISTINE
Editor and Manager

JOHN B. FINUCAN
Advertising Manager

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ILLINOIS TIRE AND ACCESSORIES DEALERS' ASSOCIATION
GARAGE OWNERS ASSOCIATION OF OHIO
IOWA RETAIL AUTOMOBILE DEALERS ASSOCIATION
GARAGE OWNERS ASSOCIATION OF MICHIGAN

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Number 4

Devoted to the interests of
GARAGE OWNERS
GARAGE OWNERS' ASSOCIATIONS
AUTOMOBILE and
SUPPLY DEALERS and REPAIR MEN.

FOUNDED BY
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THIS WORK OF ORGANIZ- ING.

For the first time in the history of the garage industry of America a business-like effort is being made to bring the garage owners together in a strong, potent, national organization.

Every garage operator and car dealer in the country realizes the need of such an organization. His opinions may not have been crystallized and expressed in concrete form, but when he encounters unfair treatment, discrimination, when he is unable to secure the discounts to which he is entitled or the courtesies which should be accorded him, as a dealer, he craves sympathy, support and effective action.

The garage man is beginning to realize that singly he is unable to cope with the situation. Organizations composed of units of greater financial strength and perhaps broader business experience are imposing their will on the garage man. The solution lies in organization, in the banding together of a sufficient number

of small units to create the necessary strength and power to make the wants and wishes of operators of garages and dealers in cars understood and respected.

THE GARAGE MAN'S END OF IT.

A world of information and advice is being handed down, out, in and up to the garage owner.

Mostly he is being told to quit being a mechanic and become a merchant. That suggestion is both good and bad. It fits and it does not fit.

A motorist takes his car into a garage and calling the owner says: "Bill, the old schooner's got something wrong with it. I wish YOU would look it over, *yourself*, and straighten out the trouble."

"Bill," feels he is morally obligated to do so. Furthermore, "Bill" may be the only chap in that garage who is capable of finding out just what is wrong with the car.

If "Bill's" skill and knowledge are not used in locating the trouble and removing it, such results may not be accomplished.

In some garages there are large and well-equipped repair shops with competent men in charge. The owner is the business manager of an institution of character. He does not wash automobiles or repair them, and he is not a salesman of accessories. It would be all the better for all concerned if the owner of a garage, or the owners, were capable of filling the place of any man employed, for, under such circumstances, there could be established a system of co-operation that raise that business to its highest degree of efficiency.

The big problem before many garage men is to serve as mechanic and merchant at one and the same time. That need is being met by many, as shown by the conversion of tumble-down repair and blacksmith shops into modern business institutions.

In still other cases it is a question of getting by and under the pressure of what is deemed necessity the garage own-

er has recourse to many expedients which it is really unwise to adopt. If the business succeeds these practices are discontinued, if the business is not a success the erstwhile owner believes he has done all in his power to make a success of it.

Many timely suggestions are being made, many pertinent bits of advice are being given. Those that are assimilated and become a part of the working capital of the garage man serve amply to repay for all the time, thought and money that is now devoted to making the garage operator a better business man.

In the end, however, the garage man must work out his own salvation, and he is doing it with sweat, oil, grease and steel filings.

ASSOCIATION WORK.

Before association work can be inaugurated and conducted on a broad and profitable scale a suitable membership must be secured, the work must be financed and talent employed to handle the several phases of the work undertaken.

Members of local garage owners associations that have been in existence for a number of years know what can be done in a purely local way. Members of the Chicago Garage Owners' Association are securing recognition, recognition that brings in additional profits, denied to other garage owners.

A like condition prevails in Detroit, San Francisco, Akron and other cities where the garage men have established bona fide associations and are conducting them along legitimate lines.

Organization must come first. The garagemen and car dealers of Akron are making a vigorous campaign with the avowed purpose of getting every concern entitled to membership identified with the Akron Automobile Trade Association. This work is being done with a full appreciation of the fact that organization must come first.

Using that organization as an example it may be pointed out that the question of

finance has not been overlooked. Dues have been increased from \$10 to \$60 a year. With a full membership and with an adequate income the work can be taken up in a practical businesslike manner, by any organization.

That has been done in Akron, a competent man being employed for secretary to carry out the wishes of the officers.

With the locals banded together in a state association, with the state organizations affiliated in a national body, there is no limit to the good results that can be accomplished.

Adequate accounting, insurance at reasonable rates, proper discounts, a thorough knowledge of the material and utilitarian value of oils, gas, accessories, and supplies, the education of the public are matters to be handled by and through the associations, local, state and national, all working together for the advancement of the individual and the general welfare.

The organization of the garagemen of America is a tremendous undertaking. The power that such an institution can wield cannot easily be predetermined.

If this work means anything it means better business, greater profits without any material increase in the cost of service or supplies, and greater satisfaction all around.

The great motoring public is perfectly willing to pay reasonable prices for prompt and efficient service. It is protesting vigorously against paying two prices, full price or even half price for service that is wholly unsatisfactory.

The business men of the country will meet the garagemen half way, and that statement holds true whether the business man is driving a car or producing oils, gasoline, tires, spark plugs, or any of the many devices sold and installed by the garageman.

That is the ultimate goal, the final outcome of the work that has been undertaken by the garage interests of America which is being carried on under the guidance and control of the National Automobile Trade Association.

GASOLINE PRICES.

Gasoline is going up. Reports from various centers show the high prices are "steady to higher." On the west coast the price is 19 cents, on the Atlantic seaboard 23 to 24 cents, in the central states 19 to 22 cents a gallon.

Whether or not prices will go higher remains for the future to disclose.

This is a time for serious, sober thought.

The Federal Trade Commission has investigated into the cause of the "high price of gasoline," and made a preliminary report from which there is very little comfort to be drawn.

There is a considerable quantity of crude oil and refined gasoline in storage

throughout the country, but those who are in position to know claim the quantity will not be more than sufficient to meet the current demands this summer.

Some oil men do not believe the supply on hand and the normal production combined will afford a sufficient quantity of gasoline to meet the demand. Stocks in the spring are usually heavy, and that is true at the present time.

The call for gasoline increases tremendously during the summer months and the surplus of refined product is consumed, to be replaced during the following winter when the demand is light.

Congressmen James, of Michigan, Van Dyke, of Minnesota, and Garland, of Pennsylvania, composing a subcommittee of the House Committee on Mines, are urging radical action in that they advocate the taking over of the producing oil fields by the government.

The Federal Trade Commission is completing its report. An investigation is being made into the affairs of the Standard Oil Company, or companies, which began in Chicago, April 13.

Protests are going up from dealers, garagemen and consumers. Various plans for remedying the situation are being proposed and considered. Investigations have been made and others are under way.

If the price of gasoline is the result of manipulation no penalty that could be devised would be too severe to impose on those responsible for prevailing conditions. If not, then the problem of producing a cheap and efficient fuel for combustion engines must be solved.

The great trouble is that investigations seem to get us no where. A new oil field with a heavy production probably would do more to send the price down than anything that could be devised.

It has been intimated that there are almost inexhaustible oil resources in Wyoming that have been tied up without being operated. If that should be proven to be a fact, it might be well to direct the attention of the government officials to its existence, provided, of course, that it has an actual existence and that it is unknown.

For the Love of Mike!

Suppose your gasoline tank stood empty for a month—long enough for every one of your customers to know that it was empty.

How many calls for gasoline would you have during the next week? Maybe a few tourists would be fooled by your sign but that would be about all, wouldn't it?

Similarly—how long do you expect that your customers will continue to come to you for accessories that you are always "just out of"? For the love of Mike, why shouldn't they buy from the mail order houses?

If you intend to make a permanent success of the garage business you've got to use every possibility it offers to make money.

Or, some day you will discover that the drug store, or maybe the ten cent store, has the accessory business, a curbstone broker has the car agency, and you have just what you are working for—a repair shop.

This is going to be the biggest year you've ever had—**IF YOU MAKE IT SO.**

Never was there a better opportunity to make a cleaning on accessories. But you must handle them in a merchant-like way.

First, put in a stock.

Second, let your customers know you have it.

Wash that front window.

Put in a display shelf with a background. Never mind if it does shut out a little sunshine.

Electric lights are a whole lot cheaper than sunshine that comes through a window that ought to be selling enough accessories to pay your rent.

Kick the dirty loafers along with the rest of the rubbish, out of your office.

Get a showcase or two.

Put in a few shelves.

Write to manufacturers of the goods you handle for circulars and window displays.

And what will be the result? We can tell you because we've seen it happen.

You'll increase your profits.

You'll be selling accessories you never had a call for, simply because you'll have those accessories out in sight.

You'll put your business on a level with other merchants.

There are more flyspecks on a window than on a windshield—keep moving.

"IT COULDN'T BE DONE."

(By Edgar A. Guest.)

Somebody said that it couldn't be done,
 But he, with a chuckle, replied
 That "maybe it couldn't," but he would be one
 Who wouldn't say so till he'd tried.
 So he buckled right in, with the trace of a grin
 On his face. If he worried, he hid it.
 He started to sing as he tackled the thing
 That couldn't be done, and he did it.

Somebody scoffed: "Oh, you'll never do that;
 At least no one ever has done it."
 But he took off his coat and he took off his hat,
 And the first thing he knew he'd begun it;
 With the lift of his chin, and a bit of a grin,
 Without any doubting or quit-it;
 He started to sing as he tackled the thing
 That couldn't be done, and he did it.

There are thousands to tell you it cannot be done,
 There are thousands to prophesy failure;
 There are thousands to point out to you, one by one,
 The dangers that wait to assail you;
 But just buckle in with a bit of a grin,
 Then take off your coat and go to it;
 Just start in to sing as you tackle the thing
 That "can not be done," and you'll do it.

GOVERNMENT GASOLINE.

It has been proposed by a subcommittee of the House that the government take over and operate the oil wells of the country.

That is a very radical step and involves so many things, is contingent on so many uncertainties, that as a remedy for the gasoline question it is of doubtful value to meet current pressing conditions.

The government cannot embark in business in an hour. It is not a question of deciding now and sticking out a sign "Gasoline for Sale," an hour later. There is endless tape to be unwound, ponderous machinery to be set in motion, the almost immovable inertia of a pre-election frame of mind on the part of the people and politicians to be overcome.

Doubtless this would resolve itself into a political question and politicians are good at conundrums. They know the answer, but by the time it has been made public the crisis usually has passed.

If the government engages in the business of producing and refining oil the product could be sold at a fairly stable price. The price would be made up of interest on the investment, as evidenced by the bonds sold to cover cost of the oil fields, a sinking fund to retire the bonds when the fields ceased to produce, interest on the refining property, depreciation and to these items necessarily would be added cost of producing and distributing. The total, or the price at which gasoline could be sold, then, would be

determined by the value of the other products secured from petroleum.

It hardly is practicable to make gasoline exclusively. There is an imaginary line between gasoline and kerosene. If the government makes gasoline it also must produce kerosene, lubricating oils, vaseline and many of the other products now secured from petroleum, in fact it must become a producer of petroleum and a refiner of petroleum products.

On any other basis the cost would be excessive and the waste or loss greater than could be withstood even by all the people of the United States.

The only reason for government ownership would be to prevent loss and do away with wide fluctuations.

Forest Service officials are selling timber growing on the National Forests. The price asked is the very top of the market. When the demand for standing timber is sluggish the Forest Service officials do not sell much. When the demand is brisk the sales are heavy.

The only way for the government to handle the oil situation, as a producer, is to make petroleum and petroleum products a government monopoly, take over

all the oil product and sell it at cost, plus a sufficient addition to cover the cost of producing and distributing, and retire obligations representing the purchase price.

WHAT IS A GARAGE?

The term "garage," as employed in America, is vague and indefinite. It means anything from the erstwhile woodshed, in which the owner stores his car, to the mammoth city establishment providing room for hundreds of machines. It is applied alike to the reformed blacksmith located at a country crossroads and to the big establishment in the near-by city where cars, tires, accessories and supplies are offered for sale, where a big repair shop is operated, where hundreds of cars may be stored, where livery service is furnished and other needs of the public are satisfied.

Seemingly there is a vast difference between the blacksmith shop and the big city establishment, but they are performing almost identical service.

For the city garage man to claim he has no interest or concern in the methods employed by the crossroads establishment is for the city man to lose sight of his own best interests.

For the well-equipped garage man and car dealer of the smaller cities to disclaim relationship with all who do not sell cars is an evidence of short-sightedness that is passing into the oblivion prepared for useless things and useless ideas.

Take the case of the car dealer: His profits are derived from the sale of cars, both new and old, from the storage and care of cars, from the repair shop, operated in connection with his business and from the sale of tires, accessories and supplies.

He serves as a clearing house for information and things the car driving public requires. Each department should pay its own way and show a profit.

Working this question out in logical sequence it should follow that each element or unit should co-operate with every other element or unit when or where interests are identical. The garage that confines itself exclusively to storing cars can co-operate effectively the garage that stores cars and operate a repair shop in all matters pertaining to the storing and caring for cars. The combination garage and repair shop can co-operate with the concern that specializes in the repair of automobiles.

The constant drop of water penetrates the hardest stone,
 The constant gnaw of Towser wears away the hardest bone,
 The constant, cooing lover wins the flinty-hearted maid,
 And the constant advertiser is the one who gets the trade.

"Organization from Within"

N. A. T. A. Meets the Demand

Under the banner of the National Automobile Trade Association the garage operators and car dealers of the United States and Canada are uniting in an offensive and defensive campaign that in every sense is constructive.

The old days of organization for the profit of the organizer or for the benefit of a pet publication scheme is passing so fast that it almost might be termed a relic of the good old barbarous ages.

This new effort is less than two years old. With it are identified the men who have been working away at the organization problem since it was taken up about eight years ago.

This movement is worthy of the support of every factor of the trade, of every garage operator and car dealer.

It is ushering in a new era of orderliness, of profit, of fair dealing, of better understanding. It is overturning all that is of a different character in the business.

YOU should be identified with this work.

ORGANIZING FROM WITHIN.

If within the ranks of the garageman and the car owner there does not exist a desire for organization, initiative to organize and ability to conduct an organization in a businesslike and satisfactory manner, any attempt along this line is foredoomed to failure.

That such a desire exists is shown by the fact that garage operators have soberly set about to get together on the right basis.

That there is sufficient initiative among the garage owners and car dealers to effect and perfect valuable organizations is shown by the existence and operation of such organizations throughout the country.

That garagemen have the initiative and ability to organize and to conduct their organizations is shown by the fact that they are doing so with profit, honor and satisfaction to every one concerned.

A Bunglesome Warning.

Recently this idea of organization for and by the garagemen gained admittance to the editorial sanctum of *Motor Age*. It must have created considerable excitement in that staid establishment, for the result of the visit was an editorial entitled "Garage Organization," which appeared in the March 16th issue.

It is reproduced here for the purpose of completing this record:

"These are the days when a wave of garage organization is sweeping over nearly all of the states of the union. Associations of garagemen were formed several years ago, but the movement only obtained impetus within the last two years. Today many garagemen are realizing what benefits come from organization and they are overstepping in organization activity. A few are getting together to form state associations, in another place a few are forming national organizations, and so it goes. There are today three or four organizations that

claim to be national organizations for garagemen. They have no pretense at national membership, but to get more advertisement and perhaps get more money they are using the national name.

"Unfortunately garagemen are suffering, due to this widespread promotion and because the professional organizer has been going abroad throughout the land talking the benefits of organization, yet working solely for the dollars and cents he will get. In several states he has taken a large percentage of the funds unto himself that should go to the organization. He has run the organization to suit himself and after a year or perhaps longer the movement has lapsed into a state of coma, and organization work has received a stifling blow, one that will not soon be forgotten.

"Organization work for garages or for any other organization should come from within. It should spring from the wishes of the garagemen, rather than be forced upon them by some glib-tongued promoter. Those organizations that have been most beneficial and most enduring have sprung from the activities of those forming the organizations. Garage organizations are needed today. The garageman has not that degree of protection under the law which the hotel man has. It is a serious offense if you attempt to avoid paying your bill in a hotel. There is practically no escape. On the other hand the garageman dealing with transients has not the law behind him like the hotel man has. Organizations of garagemen will bring such a law about. The garageman requires more assistance from the law than he is receiving."

[Here follows an outline that seemingly was drafted from the plans formulated by the National Automobile Trade Association, which we strongly recommended.]

"Garagemen will have to act more in concert to get what they require. Organizations for such must come from within. Such an organization will require the

services of a very able executive to carry out the work and push the activities of the organization, such an executive acting at the bidding of the board of directors. Such an organization and such an executive are entirely different from the professional promoter, taking unto himself the credit of having done everything that has been done to benefit the garagemen in any or all states, and using this talk as an instrument to extract more funds for his personal advancement. Such a promoter is acting only for himself and by himself. As soon as the organization starts dictating orders to him he withdraws and goes in search of more green fields. Let all garagemen beware. Before giving money or joining any association look into it, investigate it and be sure it is an organization of garagemen and not a tool of some promoter. Then you will not have cause to regret it later."

Pertinent, Though Not Timely.

If this advice had been given about two years ago, and repeated at frequent intervals, it would have helped the garagemen find the right road.

It was bellowed forth at a time when the foundation for an enduring organization was being laid. Being absolutely unbiased and impartial, telling the garagemen that they are "overstepping in activity," it naturally would have a restraining influence, if any.

Every garageman who has given his time, thought and money to aid in getting the boys together and trying to induce them to stick together received the impression that his particular organization had been singled out and that the prospective members in his field had been told: "*Beware. Before joining, Stop! Look! Listen! Investigate! They are after your money. Organization should come from within.*"

Every employe of every organization of garagemen seems to have felt he, also,

was being singled out and criticized. These employes derived their livelihood from their efforts to get an organization together, to carry on its affairs and to increase its membership.

No Distinction Made.

The ideas back of the warning promulgated by *Motor Age* are absolutely sound. Evidently they were derived from the plans made by the garagemen who launched the National Automobile Trade Association.

From the information in its possession the paper could have made an exception of the National and the organizations affiliated with it. It would not have been possible to name the untrustworthy ones, for many attempts have been and several are being made to acquire a few dollars easily by glib-tongued promoters who talk the benefits of organization and who, in an individual, personal way, have and will benefit by every organization with which they have been connected in any way.

Any one who is connected with organization work appreciates the difficulty of arousing and maintaining interest in it. Usually this part of the work must be done by an employe and on a salary or commission basis. That is true of organizations good, bad and indifferent.

A warning of the kind under discussion makes the work just a bit harder for the men with a worthy proposition as well as for those with a worthless proposition. That sort of help (?) does not change conditions in any respect. The promoter working solely for himself could find victims, the employe working for a salary could explain away the stigma thrown on efforts to get together and ultimately get his man.

Had an exception to the National Automobile Trade Association been made it would have been easier for the men in the field to secure members and it would have been more difficult, if not impossible, for the fly-by-nights to operate.

How the Organization Men Feel.

There are many businesslike organizations throughout the country. They are getting in touch one with the other, feeling each other out and in a short time they will all become merged with the National Automobile Trade Association.

The National Automobile Trade Association is officered exclusively by garagemen and car dealers. These officers were selected with care by the delegates who attended the annual meeting of the Associated Garages of America, at which meeting the National was organized to take over and carry on the work.

Robert Bland, of Bland's Electric Garage, Evanston, Ill., the president, has been identified with organization work for many years. He has been an active force in the garage field in Chicago for eight years.

The other officers are: F. A. Bean, treasurer, Detroit, Mich., and R. A. Wil-

son, of Chicago, the secretary, who has charge of the active work.

The vice-presidents, who also serve as directors, are all active association workers, garage operators and car dealers. Their names and locations are given:

DIRECTORS OF THE NATIONAL.

Jacob Friedman, Dyersburg, Ia.
E. T. Jones, Akron, Ohio.
L. C. Steers, Detroit, Mich.
W. B. Taylor, Rockford, Ill.
K. R. Vaught, Indianapolis, Ind.

Nearly all are active in association work in other fields, serving as officers of long established, active and efficient associations.

Tri-City Organization.

One of the live associations is the Tri-City Automobile Trade Association, embracing the dealers and garagemen of Davenport, Iowa, and Rock Island and Moline, Ill. R. E. Beedee, secretary, commenting on the warning, says:

There is doubtless some truth and possibly more than we know of as regards the professional organizer. However, it seems to us that the editor could have written along constructive, instead of destructive, organization lines.

Live men are serving as officers of our organization.

G. F. Burnmeister, president, owns the Iowa Auto & Tire Company, of Davenport. He has been active in association work for six years and engaged in the garage business for seven or eight years.

E. G. Donn, our vice-president, owns the Donn Sales Company, located at Rock Island. He has been a member for four years and in the business for five or six years.

R. E. Beedee serves as both secretary and treasurer and operates the Interstate Auto & Supply Company, at Davenport. He has been active in the business for four years. Hereafter a paid assistant secretary will be employed to give more time to the work than a dealer can afford to give and we expect to have the work done right.

Michigan Automobile Trade Association.

The following four letters from the officers of the Michigan Automobile Trade Association serve to record the standing of men who are guiding that organization:

Big Rapids, Mich.—I attended the first meeting when the state association was organized and this makes my ninth year in the garage and automobile business.

I cannot say just how long I have been interested in Association work but I have always felt such work was absolutely necessary in order to help the little fellows learn to do business as it should be done. My opinion has always been that most failures in the garage business, as well as some others, have been due to the inability to do business correctly and not to the amount of business done.—L. F. BERTRAU, President Michigan Automobile Trade Association.

Battle Creek, Mich.—I have been in the garage business for about sixteen years and have run a garage of my own for about six years. I have been connected with the association work since last December, and I feel that I am getting great benefit from it.—L. C. RIVERS, First Vice-

President Michigan Automobile Trade Association.

Coldwater, Mich.—I have been in the garage business for my own account for eight years and have seen the benefits arising from organized efforts for the last four years.

When our garage was started it was practically a one-man proposition with repair man, washer, automobile salesman all combined in one person. Our business has practically doubled every two years since. We now employ fourteen men, own our business and our garage. The building is 50x150, two stories high and has all the different departments that can be used to advantage, that is vulcanizing, repair, painting, storage and accessories, besides serving as Studebaker distributor in this section. Our garage is run on a systematic basis and we have an up-to-date book-keeping system.

I am serving my second term as treasurer of our state association, and I am sure that the different states and the National organization will do wonders for the automobile business in a short time.—C. F. STRONG, Treasurer, Michigan Automobile Trade Association.

Organization from Within.

L. C. Steers, secretary of the Michigan Automobile Trade Association, just signed a six year extension of his lease on the "518 Garage," 518 Grand River avenue, Detroit, Mich., where he has been located for four years or more. He has been one of the most active and useful members of the Detroit organization and also of the state association.

Regarding the question of this movement springing from within, Mr. Steers writes:

There are several states affiliated with our National association and there are several local associations affiliated with our state associations and we believe that with one exception every officer and director in ALL of these associations is actively engaged, personally, in the garage business, which should prove conclusively that the spirit of our association work is coming "FROM WITHIN." The exception I mention is the secretary of our National association.

There are a number of other so-called garage associations springing up throughout the country, but our own national association, the National Automobile Trade Association, is the only one that is organized by garage men, for garage men and their affiliated interests. All of the genuine associations are either directly or indirectly affiliated with our national or expect shortly to affiliate.

Iowa Automobile Business Association.

DES MOINES, IOWA.—We cannot all agree on all things at all times. Personally, I am heartily in favor of the article as published in *Motor Age* and should like to see you and *Motor World* and other magazines that reach the car dealer and garageman take up this matter in the same spirit that *Motor Age* has and give it as much publicity as you could spare space.

The automobile men should carefully consider the organization they are to affiliate with, look into its foundation, see on what merit it is founded and be just as sure they are getting something as

they are when they buy an automobile or take on a line of accessories.

An organization that is founded right will appreciate such an investigation and a member that goes into an organization after this investigation will be a member, and the organization will be an organization. On any other basis the movement is done more harm than good.

Our organization appreciates such an investigation and we are glad to give its full history to any eligible candidate clear down to the committee of eight automobile men who circulated a petition among the others in our city as to whether they wanted an organization started.

N. T. MILLER,
Secretary, Iowa Automobile Business Association.

Officers of the I. A. B. A.

"We cannot all agree on all things at all times," so GARAGE EFFICIENCY figured that with full information respecting the reliable associations available a garage operator or car dealer would go to the trouble to make inquiries before signing up with any other, at least in the territory covered by these organizations.

The following information was supplied by Mr. Miller and relates to the officers of the Iowa Automobile Business Association:

J. C. Bernhard, the president, operates the Bernhard & Turner Garage at 506 South Seventh street, Des Moines, has been in the business ten years and in association work five years.

H. C. Carr, the vice-president, operates the Diamond Tire & Supply Company at 413 Twelfth street and has been a member one year, a tire dealer two years.

A. R. Rockwell, the treasurer, is sales manager of the Herring Motor Company with a garage at 108 Tenth street, Des Moines. He has been identified with association work three years and with the garage business ten years.

N. T. Miller is a salaried employe and has been an active force in association work for five years, in the garage business for four years.

Chicago Garage Owners' Association.

Chicago, the pioneer organization of garage men in the country, the oldest and one of the most progressive, by many credited with having given birth to the idea of a real organization to promote the interests and welfare of the garage operators and car dealers, is officered by successful garage owners. They are successful in their own affairs and with the affairs of the organization. The subjoined information is supplied:

H. E. Halbert, the president, owns and operates the Garfield Park Auto Station, 606 Independence Boulevard, Chicago. He has been an active factor in association work for eleven years and in the garage business for twelve years.

R. C. MacPherson, the vice-president, operates the Wilson Avenue Garage Company at 4551 Kenmore avenue, and has been active in the association for five years and in the garage business for eight years.

B. F. Campbell, the treasurer, runs the Kenwood Garage at 1146 E. 47th street,

Chicago. He has been a member for five years and a garage man for six years.

Harry Salvat, the secretary, runs the Fashion Auto Station at 740 E. 51st street. He has been an association worker eight years, a garage man for ten years.

Ohio Automobile Trade Association.

Work in Ohio is going forward with a rush. Matters have been placed on a strictly business basis and the organizing work is being pushed very rapidly. The affairs of the organization are in exceptionally strong, capable hands and are being handled on a strictly business basis.

F. T. Price, the president, owns the Hilane Garage, at Columbus. He has been an association worker for two years and in the garage business for four years.

E. T. Jones, vice-president, owns the Jones Auto Company, of Akron, and has been a power in the association field for three years, in the garage business for seven years.

A. J. Peebles, secretary and treasurer, with office at Columbus, is a hustler. He is a salaried employee and has been with the organization, in that capacity, since its inception about a year ago.

San Francisco's Great Organization.

Out on the coast, by the Golden Gate, there is one of the best organizations of city garage men in the country. It has a large membership and is doing great work for its members and for the trade generally. It is built on broad gauged lines.

John B. Kelly, the president of the association operates the Kelly Garage at Market & Van Ness avenue, which he owned for nine years. This was sold in the latter part of 1915 and Mr. Kelly now devoted himself to association work and directing the affairs of the Kelly Ball Bearing Company. Formerly he conducted a garage and sales agency in Portland, Oregon, and was interested in association work in that city.

Vice-President C. W. Eichbaum operates two garages, the Market Street Garage and the Junction Garage and has owned them for three and four years respectively.

A. D'Ettel, secretary and treasurer, has held those positions since the association was launched, about four years ago. His is a salaried position.

This association's affairs are conducted by a board of directors which makes the policy and outlines the work.

Secretary D'Ettel writes:

Certainly our experience with the National, as we know it, has been anything but a hold up game, as described by Motor Age. The only money ever taken from us was \$15 for a charter last year. There never has been any question of assisting the National until we have perfected a state organization which shall cover California.

I certainly hope you will go after the situation with a big stick and in the end we will make this article of Motor Age's do us a world of good.

That is the constructive idea that is actuating and dominating the men who are behind this movement. That idea is to build, to make a gain, to consolidate that gain with others, to keep the work going and to plan for the future.

Iowa Retail Auto Dealers' Association.

"He who seeks equity must do equity," is the motto of the Iowa Retail Auto Dealers' Association, with headquarters in Des Moines, Iowa.

This organization has a strong board of directors and able officers. Jacob Friedman, owner of the Dyersville Auto Company, Dyersville, Iowa, is president and also is a director of the National Automobile Trade Association. He has been an association worker for twenty years and engaged in the automobile business for eight years.

D. O. Babcock, the vice-president, operates the City Garage at Gowrie, Iowa, and his experience is coincident with that of President Friedman.

S. L. Seaman, secretary and treasurer is a salaried employee.

The directors of this organization are:

A. C. Heath, Fort Dodge Automobile Company, Fort Dodge, Iowa.

F. C. Stearns, Stearns Garage, Rockwell City, Iowa.

E. C. Dickinson, Algona Auto & Machine Company, Algona, Iowa.

B. W. Sloan, Sloan's Garage, Brooklyn, Iowa.

E. J. Miles, E. J. Miles & Company, operating the pioneer garage of the state at Newton, Iowa.

A. C. Decker, Motor Inn, and president of the Decker Manufacturing Company, Keokuk, Iowa.

T. J. Werhan, Pioneer Auto Company, Waukon, Iowa.

W. A. Doze, Doze Motor Car Company, Humeston, Iowa.

Joseph Maurer, Maurer Auto & Garage Company, Spencer, Iowa.

This organization had a membership of about 900 January 1, 1916. A membership of 1,500 is confidently predicted for January, 1917, when the annual convention will be held at Fort Dodge, Iowa.

Local Organizations.

In Illinois, Ohio and Michigan are a number of live local associations, embracing the trade of certain cities or counties. In Ohio and Michigan, where the work is going forward systematically and with gratifying rapidity, the locals are designated as: Battle Creek Automobile Trade Association, Detroit Automobile Trade Association, Akron Automobile Trade Association, etc.

Work on the Coast.

Organization work is under way on the Pacific coast. San Francisco has a live and valuable organization, as has been shown. Seattle has laid the foundation for a potent association that already is doing excellent work.

Oregon is taking up the work of organizing. Ultimately it is planned to affiliate in a tri-state association and join the National Automobile Trade Association.

The following, reproduced from the *Motor Trades Bulletin*, published by the Washington Motor Trades Association,

of Seattle, tells the story of who is responsible for the work in that city:

"Who Is Back of the Washington Motor Trades?"

The secretary has been repeatedly asked who was backing the association. There are people who persist in saying that it must be backed by someone. Let it be known now and for all time, that no one singly or as a corporation, outside the members, as at any time contributed one cent to the support of the association. We are neither hampered nor bound by a single person on earth.

At the first meeting of the association, when it was agreed that the motor trades organize, a collection was taken up to defray any petty expense that might arise until the organization was assured. This collection amounted to \$14.75 and every one contributing was credited on their entrance fee or dues accordingly.

Since then the entrance fees and dues have been partially sufficient to pay office rent, telephone, secretary's salary and road expense and printing bills. We maintain no salaried officers but the secretary, who was the organizer.

The Credit Bureau will in a short time be self-supporting.

The members of this association have banded together to better conditions for themselves and the public; they stand for everything that will be of benefit to the members and the community at large. Therefore the association is absolutely free to do as it deems best. A more loyal band of men could not be found and that they have been able to carry the association to its present status is highly to their credit and only reflects their determination.

OUR ORIGIN.

This is in answer to the many inquiries as to "Who is back of the Michigan Automobile Trade Association?"

There are a number of people who per-

sist in saying that it must be backed by someone. Let it be known now and for all times that none, singly or as a corporation, outside the members has, at any time, contributed one cent to the support of the association. We are neither hampered or bound by a single person on earth.

Back in July, 1914, the Detroit Garage & Station Operators' Association was organized by a few garage and station men for the betterment of trade conditions. This same association the following winter was able to put through our present Michigan lien law, which still carries three good points out of the four that were in the original draft, and on May 22, 1915, the Detroit association called the state garage men and dealers to join in convention with them at the Statler hotel to organize a state association. The expense of this convention was born by the Detroit association, and at the same convention the Garage Owners' Association of Michigan was organized, which has a membership today of nearly 200 and extends into thirty-four counties of the state.

In January, 1915, the Associated Garages of America was organized in Chicago by the Chicago Garage Owners' Association and the Garage Owners' Association of Illinois. These associations, as well as our Michigan and Detroit associations, are all and always have been officered and promoted by garage men and dealers. The present Michigan secretary was a delegate from the Detroit Association to this National convention in Chi-

cago. After our National association was organized the different car dealers' associations throughout the country were talking of organizing a National association, and in order to admit them into our National association under one big national movement the constitution and by-laws of our National association were changed at the January convention 1916 to conform with these conditions, and at the same time the name was changed to that of the "National Automobile Trade Association," so that the name would apply to all of the legitimate retail automobile industries, and not favor one more than another in its application. Likewise on March 1 our Detroit Association changed its name to the "Detroit Automobile Trade Association," and our Michigan Association changed its name to the "Michigan Automobile Trade Association," and amended their constitution and by-laws so as to conform with the broader scope of our National association.

Bear in mind that every officer, including the secretaries of the Detroit and Michigan associations, are actively engaged in the garage business, or is a legitimate dealer as defined in our constitution and by-laws. The slogan of our association has always been:

"An Organization of Dealers and Garage Men, by Dealers and Garage Men, for Dealers, Garage Men and Their Affiliated Interests."

Very truly yours,

MICHIGAN AUTOMOBILE TRADE ASSOCIATION.

Stop! Look! Listen!

The Price of Gasoline Is Going Up

What does this country intend to do with the gasoline question?

What influence and bearing will the high price of gasoline have on the continued and greater use of the gasoline engine?

How is this question to be handled?

By legislative inquiry into the question of who is responsible?

By putting competitive gasoline producers in the field, by talking about the "fearful conditions" or by facing the facts?

It is estimated that the production of gasoline this year will be about the same as last year, viz., approximately 1,250,000,000 gallons. It is thought the demand will call for 1,500,000,000 gallons.

How is this difference to be made up? What will the effect be on industry, on the use of the pleasure vehicle, the truck,

the farm tractor and the farm power engine, employed for many purposes?

Opinions Differ.

All manner of solutions have been suggested, but so far not one of them has provided a remedy that exactly meets the needs of the situation.

The Ritman process, by which the production of gasoline from crude oil may be increased, has been brought forward as a solution. Possibly the general adoption of that process by the refineries, if such adoption be practicable, would relieve existing conditions materially.

In laboratory work it has been found possible to break down almost any form of petroleum and to produce a light, volatile oil that will serve as gasoline, in fact that may be gasoline. This process is not being employed by the refineries and it has not yet been demonstrated that the

laboratory experiment will work out in a commercial plant.

The Scapegoat.

Perhaps there is a sufficient supply of crude petroleum in the world to furnish gasoline indefinitely. If so, it should be remembered that the crude oil is not now coming on the market. This is shown by the fact that prices have advanced from an ostensible 40 to 45 cents per barrel to \$1.45, with some buyers paying big premiums, estimated to range as high as 80 cents a barrel.

Production in the celebrated Cushing field has decreased about 60 percent, the drop being from 250,000 barrels to 60,000 to 100,000 barrels per day.

The demand for gasoline is increasing in almost unthinkable ways.

An American Demand.

It is typical that Americans demand

high power cars. Taxicabs in Berlin, Germany, are rated at eight to twelve horse power. In American the horse power of the taxi cab ranged from 20 to 40. Perhaps this extra power is needed, perhaps it is not, most likely not. Gasoline has been cheap in American and has been used lavishly, recklessly, wastefully.

Gasoline is expensive in Europe, even before the war, and has been and is used economically.

Perhaps this country is in for a period of suffering as a result of its previous wasteful methods. At any rate, it is in for a period of readjustment.

Solutions for the Gasoline Problem.

There are three adequate solutions for the gasoline question. The first, which may or may not be a practical solution, is to make more gasoline by producing more crude oil.

The second, which also may or may not be practicable, is to produce more gasoline from the oil now reaching the market.

The third is to discover or invent a substitute fuel which may be used in the ordinary gasoline engine interchangeably with gasoline.

Any one of the three will meet the needs of the hour. The great difficulty is in providing the solution.

A fuel necessitating a different engine or a different carburetor scarcely will solve the problem, owing, in large measure, to the difficulty and the cost of making delivery. Each garage and filling station would be called upon to install duplicate apparatus to handle the extra fuel.

Gasoline, it should be remembered, has not been a source of any considerable profit to the retail dealer and if he is called upon to double his investment in storage tanks and pumps to handle the new fuel there would be even less profit in this department of the business.

Demand and Supply.

Demand and supply are alleged to regulate prices. The price of gasoline in Berlin, before the war, is said to have been 38 cents a gallon. The price is now \$2.25 per gallon. It is used only in starting. A 50:50 mixture of benzol and alcohol is then employed to run the engine and that mixture, said to exceed gasoline in fuel value, costs in the neighborhood of 40 cents a gallon. The ordinary gasoline carburetor may be used.

Locating the Blame.

At a meeting of representatives of the automobile industry, held in Detroit, Mich., March 30, a resolution calling for a report by the Federal Trade Commission was adopted.

A review of the action taken is here given:

DETROIT, MICH., March 30.—At the call of the secretary of the Michigan Automobile Trade Association, a provisional au-

tomobilemen's conference was held at the Hotel Statler on March 30 to consider the present gasoline situation.

The assembly was composed of five representatives of the Detroit Automobile Trade Association, four members of the Detroit Automobile Dealers' Association, together with the secretary, five from the Detroit Manufacturers and one from the Minneapolis Trade Association, making a total attendance of fifteen.

At the request of the secretary of the Michigan Automobile Trade Association, the meeting was called to order by Frank N. Lealand, president of the Detroit Dealers' Association.

The chairman called on Mr. Will, representative of the Minneapolis Automobile Trade Association, to report on the present gasoline question. This report was followed by a general discussion among those present and resulted in the adoption of the following resolution:

At a joint conference of representatives from the Detroit Automobile Dealers' Association, the Detroit Automobile Trade Association, the Michigan Automobile Trade Association, and representatives from the manufacturers of automobiles in Detroit, held at the Hotel Statler on March 30, the present gasoline situation was quite thoroughly discussed and,

Whereas, We believe that the situation is such that it demands a thorough investigation to the end that the interests of all users of gasoline may be protected and the automobile industry, in general, promoted, therefore be it

Resolved: That we request the various secretaries of all associations affiliated with the National Automobile Trade Association to communicate with the National Automobile Chamber of Commerce, requesting that body to give the gasoline situation its careful consideration and to co-operate with other national organizations with the view towards securing a speedy and thorough investigation and report by the Federal Trade Commission that is now investigating the gasoline situation throughout the United States, and be it further

Resolved: That, it having been brought to our attention that the National Chamber of Commerce is about to hold a meeting to consider this question, we tender to the National Automobile Chamber of Commerce our support and co-operation in such investigation or steps that it may take in reference to the gasoline situation.

The chairman then requested Mr. Steers, secretary of the Michigan Automobile Trade Association, to continue to act as temporary secretary and to call a meeting together again as soon as any action had been taken by the National Automobile Chamber of Commerce.

The chairman, Mr. Frank N. Sealand, announced that the meeting stood adjourned, subject to the call of the acting secretary.

"Gasoline Advance Remains a Mystery."

There is very little consolation to be derived from the report of the Federal

Trade Commission. Associated Press despatches carried a synopsis of that report on April 10, which follows:

Washington, D. C., April 10.—The federal trade commission today presented to Congress a preliminary report on its investigation of the rise in the price in gasoline. The report carries a mass of statistics on production and prices, but draws no conclusions as to the cause of the increase of the latter.

Of alleged price discrimination, which the commission is charged with investigating under a Senate resolution, the report says:

"If prices are found to have been raised to higher levels in some sections than in others, making due allowance for quality of product, freight and marketing conditions, it may be inferred that an element of artificial manipulation has entered into the advance."

Range of Tank Wagon Prices.

One table submitted with the report shows that tank wagon prices, higher in the west in January, 1915, than they were in the east, were higher a year later in the east. The same relation was shown between prices in the east and west after freight was deducted. No mention was made of differences in marketing conditions in the two sections.

Suggestions that increasing exports have been partly to blame for higher prices are considered in a table that shows 1915 exports amounted to 15 per cent of the entire gasoline content of all the crude petroleum produced in the United States within the year. Exports for the year of gasoline, naphtha and benzine reached 284,500,000 gallons, against 238,500,000 in 1914 and 188,000,000 in 1913.

Standard Output Is Shown.

Standard Oil companies, the table shows, produced about 60 per cent of the year's gasoline output. Their total was 681,750,000 gallons and that of the independents 400,000,000 in round figures.

Price ranges show that the price charged by the independents averages about 1 per cent higher than Standard prices. The Standard was selling gasoline f. o. b. at its refineries at 7.82 cents a gallon Jan. 1, 1915, and the independents were charging 8.38 for the same grade. There was little change until August, when the Standard price went to 7.88 and the independent price dropped to 8.02. Four months later, in December, the Standard was charging 12.84 and the independents 13.07.

Standard Oil Company Investigation Urged.

On April 11 the senate took cognizance of the gasoline situation, as shown by the following dispatch:

Washington, D. C., April 11.—The Senate took steps today to compel the Standard Oil Company to reduce the price of gasoline and also to force the Wilson administration to prosecute the company for increasing the prices without cause.

Senator Kenyon of Iowa brought about action when he introduced a resolution directing Attorney General Gregory to submit to the Senate all reports of investigations made by the department of justice into the Standard Oil Company's activities since the Supreme court handed down its decision declaring the oil company a trust in restraint of trade.

Without debate, further than a statement from Senator Kenyon, the Senate adopted this resolution. The measure called specifically for all information the department has concerning the gasoline situation.

Trade Commission Query.

The action of the Senate today was regarded with anything but friendliness in administration quarters.

For weeks the department of justice has declined to proceed with any criminal action against the Standard Oil Company because the federal trade commission is investigating the gasoline situation now. The commission has just made a preliminary report to the Senate, in which it states that there has been a juggling of prices and a discrimination between territories. Also, the commission asserted that there was no relation between the price charged for gasoline and the price paid by the oil company for the crude petroleum from which gasoline is made.

Just what the department of justice will report to the Senate no one seems to know.

Wilson Fears Big Business?

In many circles it was said tonight that President Wilson is opposed to having the department proceed against the oil company now because he does not wish to be put in the attitude of attacking business just on the eve of a presidential campaign.

Real Work to be Done.

This question of an acceptable and adequate supply of fuel for combustion engines must be met. Accepting the report of the Federal Trade Commission it hardly seems possible that the Standard Oil companies are controlling the price by remaining 1 percent under the prices at which the independent refiners are selling their product.

The Federal Trade Commission is credited with possessing the facilities and the abilities to ascertain the facts in a case of this sort.

Investigations, whatever else they may do, do not increase the production of the coveted liquid nor do they lower the price.

A Mechanical Solution.

In the meantime ways and means of cutting down the quality of gasoline required in the operation of a car are being perfected. That, of itself, is a big step in the right direction.

There will be more steps of this sort taken in the near future and a great many more of them are absolutely required.

This year it is predicted the car builders will add one million gasoline consumers to those now in the field. Next year probably will see a like increase, if not a greater one.

This question of fuel, therefore, will become increasingly important from year to year. Steps should be taken now to provide a solution by placing within reach of the fuel user an adequate supply. If there is not enough gasoline to meet the demand, then something else must be furnished.

PROBING INTO GASOLINE PRICES.

DETROIT, MICH., April 12.—What action are you taking to voice your protest on the present gasoline situation? Have you written to your Representative at Washington?

You, no doubt, are aware that the Hon-

orable W. Frank James, of the Twelfth district of Michigan; Congressman Van Dyke, of Minneapolis, and Garland, of Pennsylvania, composing a sub-committee of the House Committee on Mines, at Washington, are advocating the seizure by the government of all the oil-producing properties in the United States. The Federal Trade Commission, which is making a thorough research and investigation of the gasoline situation, is expected to make its report before the month is out. In the meantime, the public is paying this uncalled-for high price for gasoline and the automobile business is suffering the consequence. In Detroit today, we are informed, that it costs the independents practically 21½ cents per gallon to deliver gasoline to the dealer. The dealers are retailing it at 22 cents, against the Standard Oil price of 19 cents.

On March 15 our general letter to you stated the prices at which gasoline was sold in the principal parts of the country on March 1. We have since been informed that, on January 1, 1916, instead of there being a falling off in the production of crude, the Oklahoma district was producing more crude and had more crude in storage (mostly at 40 cents per barrel) than at any other time in its history, and nearly 64 percent of this was owned by one oil syndicate. It is the enormous quantity of gasoline and oil that is being exported and not the shortage in the production that has raised the price of gasoline, and why should the American people pay such an enormous cost on the millions of gallons of gasoline that is being consumed daily by her people? A high protective tariff will not stop the export. It therefore resolves itself into one of two things for the government to do, to put on an embargo or take over the properties for the people. If something is not done soon, the few independents who are putting up the fight in the middle states will be wiped out and you will be paying as much if not more for gasoline than in other states where the independents are not operating.

It is the duty of every man in the state of Michigan who is interested in the automobile industry to help us and the other associations throughout the country to help fight this high handed manipulation and assist the government in determining some plan of redress. We want you to write us, giving your personal views in the matter and stating as to what extent we can count on you for support. If you feel like backing up Congressman James in his movement, kindly write to him at Washington offering your support and if you do not exactly agree with him write and tell him what you think he should do in representing you in the matter. Do not wait until tomorrow, but write these two letters today. We have spent a good deal of time and money to

help protect you in the matter and we feel that we are entitled to your share of support.

We are writing a similar letter to approximately 1,300 garage men and dealers in Michigan. There are about 400 more, of whom we have not the names and addresses or we would write to them also, but if each man who receives this letter will inform us that his neighbor has not received one it will help us to get these men on our mailing list, and eventually their support. Another thing, if each man receiving this letter was a member of our association, and we had the small cost of his membership in our treasury, it would allow us to send a delegation to Washington similar to what the other states are doing to voice our protest and demand quick action. Our association is but a little over ten months old, and in that time we have benefited every garage man and dealer in the state of Michigan many times the cost of his membership. We need you as a member, as one more man to pledge himself in our work to secure a square deal for the car owner, and a square deal through legislation and otherwise for the dealer and garage man. The mere fact of the knowledge that our state and national associations are protecting you should be worth more than the cost of maintaining a membership in our association.

As stated in our previous letter, our National association and its affiliations have changed their constitution and by-laws so as to include every legitimate dealer and garage man to general membership. Our national is now known as the "National Automobile Trade Association," and the new name of our state association as signed below conforms with it. If a copy of our new constitution and by-laws will be of any service to you, you are welcome to it for the asking.

We also have a few copies left of the February GARAGE EFFICIENCY, which we would be glad to mail to you upon request, if you have not had one.

Kindly consider this question seriously and above all write to Congressman James immediately and tender him your support. Don't wait until tomorrow, but do it now. Another thing, please do not get our association confused with so-called "Garage Owners' Associations" that are springing up to get subscriptions to some magazine or sell goods for a mail order house. All associations affiliated with the National Automobile Trade Association, 208 South La Salle street, Chicago, Ill., are genuine and are officered by dealers and garage men, and in most cases without pay, and are worthy of your support and should have it. Won't you write us for the by-laws and write a letter to Mr. James today? Very truly yours,
MICHIGAN AUTOMOBILE TRADE ASSOCIATION.

L. C. STEERS, Secretary.

Association Secretary Visits Goodyear

**Aims of New Automobile Trade Association Outlined by
Robert A. Wilson**

[From the March Issue of Goodyear Tire News.]

A prominent speaker at a dinner of the Akron Automobile Trade Association on March 8 was Robert A. Wilson, secretary of the new National Automobile Trade Association, the formation of which was reported in the last issue of *Goodyear Tire News* (it was erroneously referred to there as the National Retail Automobile Dealer Association).

Mr. Wilson visited the Goodyear offices while in Akron and submitted to the impertinence of the official *Goodyear Tire News* snap-shooter, who wanted a picture of the distinguished visitor for the paper. The snap-shooter didn't get a very good likeness and quite failed to record an impression of the nervous energy of his sitter. The characteristic poses of the new national secretary are the poses of action, and it would have been the job of a moving picture camera to obtain a life-like portrait.

Secretary Wilson states that the formation of the National Automobile Trade Association has been greeted with great enthusiasm everywhere. Existing state associations have been quick to affiliate, and the calls for the secretary's assistance in forming new local organizations have been so insistent as to keep him on the go continuously since the January meeting in Chicago when the plans for the national body took shape. This is just the beginning, Wilson is confident, and he is hard at work building up an organization large enough to co-operate with dealers in every section of the country in the organization of state and city associations.

"If we can arouse such enthusiasm among the dealers as was displayed by the Akron dealers at that dinner last night," said Mr. Wilson, "or by the dealers of Champaign County, Ill., where I spent some time last month, the success of our association is assured. These local organizations are the backbone of the whole plan. Once get them working in harmony, and the national association will quickly acquire the strength that will enable it to tie the whole industry together in a close-knit union that will have an immense power for good in the trade."

"What are some of the specific things that the national association will attempt to do?" Mr. Wilson was asked.

"In the first place," was the reply, "we must tackle the problem of cost accounting. That is the weakest point in the retail automobile trade at the present time. The prevalence of price-cutting

is almost entirely due to the fact that most men in this business don't know whether they are making or losing money. Why, Mr. Jones, here [E. T. Jones, director of the national association and secretary of the Akron dealers' association was present at the interview], tells me of a meeting in another state that he attended recently. There were eighty-six garage owners present and Mr. Jones made a bet of \$50 to \$10 that there were not ten of them who had cost systems. He won. The question was put to the



R. A. WILSON, Chicago, Ill., Secretary,
National Automobile Trade Association.

assembly and only three men out of the eighty-six were able to say that they were operating on a business basis.

"With that condition existing, the Association doesn't have to look far for big work to do. Of course we must build up a strong membership first, but after that we are going to have a cost department with traveling auditors who will show members of local associations how to install simple and practical cost systems.

"That is only one of the things that the future holds. Insurance is a subject that demands attention. Garages at present are paying too high a rate. Our national association will be able to save its members hundreds of thousands of dollars annually in premiums.

"Better credit ratings can be secured by the Association from the commercial agencies. Taking the country over, garages are rated very low considering their actual financial responsibility, and this is

largely due to their failure to appreciate the importance of giving complete information about their business. You can't blame the commercial agencies for this, but there is no doubt that they will adopt a more responsive attitude as far as Association members are concerned if the right spirit of co-operation is manifested by us.

"One of the things we want to do is to raise the tone of the garages of the country. We want our members to work for a higher standard for themselves and their fellow members, so that the American public will come to know that the sign 'Member National Automobile Trade Association' over a dealer's place of business is a guarantee of fair dealing and efficient service.

"Every local association affiliated with the national body will get the benefit of the best ideas springing from every other local group. Bulletins will be issued describing plans that other dealers have developed successfully. The Association will act as a clearing house for the progressive thought of the trade.

"It will take time, to be sure, to accomplish all this, but the day will be brought nearer every time a local or state association affiliates with the central association. I wish that it were possible to send organizers from one end of the country to the other right now, but as this is out of the question I want to take advantage of this opportunity to urge through *Goodyear Tire News* that dealers take the initiative without waiting for me or my assistants to come to see them. Whether they are already organized or not, they can get in line with the movement. We are ready to help. We are preparing by-laws and can give much assistance to local associations. They may write to me or to any of the five national directors and be sure of receiving instant co-operation."

The Goodyear Tire and Rubber Company believes in the National Automobile Trade Association. It thinks that the right men are directing it, and that its success will be the best thing that has ever happened to the retail automobile industry of this country. It heartily seconds Mr. Wilson's appeal to dealers to lose no time in displaying their interest and their intention to co-operate.

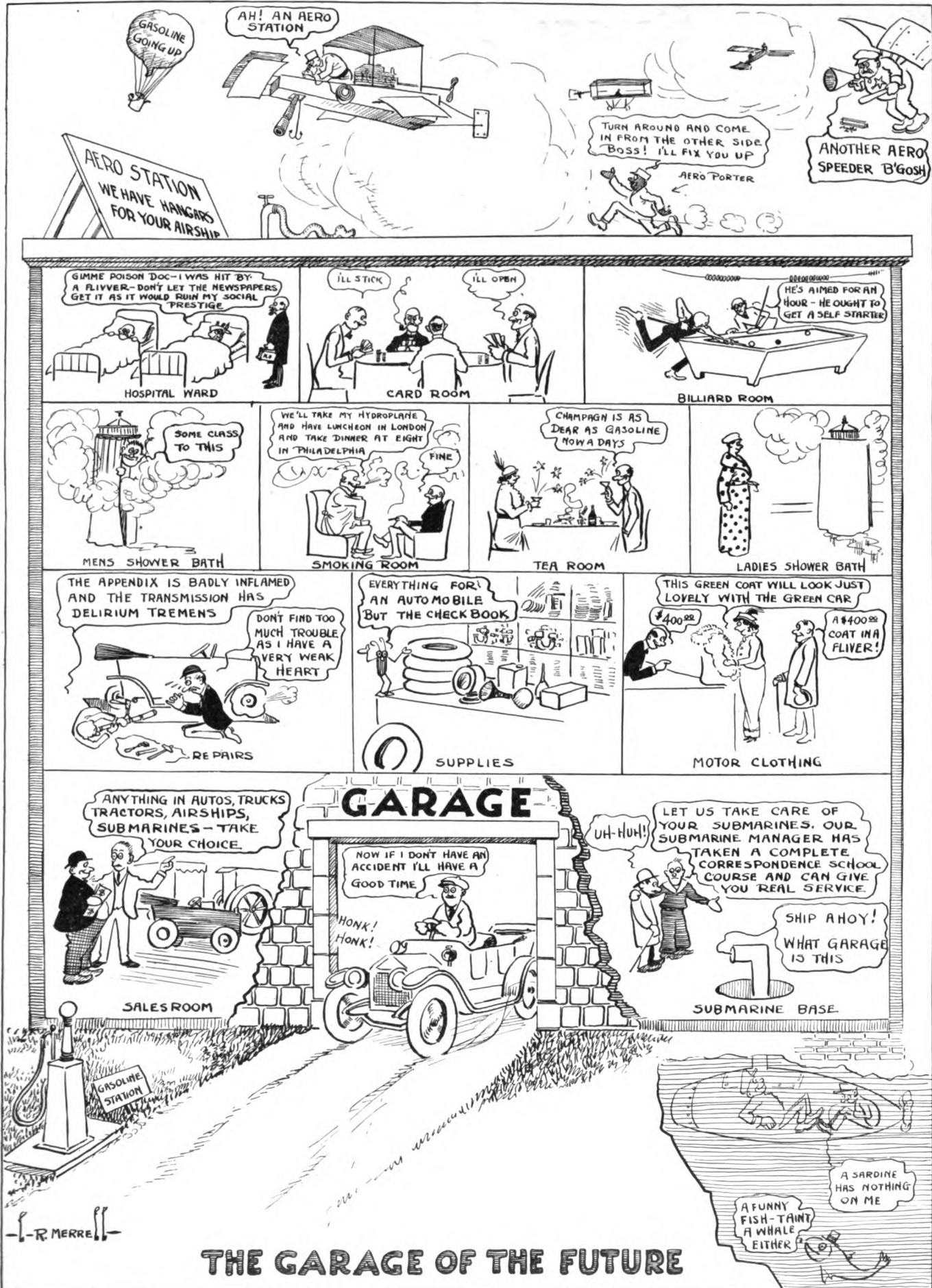
The officers and directors of the Association are as follows:

President, Robert Bland, Evanston, Ill.
Secretary, Robert A. Wilson, 208 South La Salle Street, Chicago.

Treasurer, F. A. Bean, Detroit.

Directors.

Jacob Friedman, Dyersville, Iowa.
Walter B. Taylor, Rockford, Ill.
L. C. Steers, Detroit, Mich.
Karl R. Vaught, Indianapolis, Ind.
E. T. Jones, Akron, Ohio.



Garage Accounting

[A Monthly Feature Prepared by Horace Edward Hollister, Rockford, Ill.]

THE DAILY STATEMENT.

Daily information concerning the assets, liabilities and operations of any active business enterprise, such as a garage, are a necessity to the managing head of the business. For this information the average garage manager relies on his own knowledge of transactions as they occur, supplemented by personal reference to the current records. Thus he is usually obliged to keep pretty close tab on the bank balance as shown by the check stub running record. He has a more or less approximate knowledge, depending upon the nature of his sales journal, of how sales are running. At the end of the month he finds out how much his accounts receivable amount to. With this meager information he worries along—with the accent on the "worry."

Dissatisfied with this condition of affairs, some have turned for relief to what may be termed the quack doctors of business. Concerning this class of practitioners, the patent medicine vendors of accounting, Robert H. Montmorey, C. P. A., one of the foremost American authorities on accounting, says in his "Auditing, Theory & Practice," p. 308:

"... About ten years ago ... stationery houses, which carried an 'auditing department' as a side line were making a great stir through advertising and traveling solicitors, and were offering to produce wonderful results, including daily balance sheets and profit and loss statements, the only requirement being the installation of their patented stationery. Offices were turned inside out and new books were installed by the ton, but for

some reason the service did not measure up to the promises and hundreds of offices discarded much of the 'junk' which had been thrust upon them, and went back to saner methods."

This department of GARAGE EFFICIENCY since its inception has always stood for the principles and methods recognized as legitimate and scientific by American accounting authorities, than whom there are no better in the world. And logic, observation and experience teach us that these methods are always the most efficient and satisfactory in the long run. Mr. Montgomery adds: "Ready-made systems have been popular but never successful." Accordingly our efforts have and will continue to be, not to supply a ready-made, hand-me-down accounting system, but to point out how approved ac-

Accounting Contest

GARAGE EFFICIENCY takes considerable satisfaction in the fact that a year ago it recognized *better accounting* as one of the paramount needs of the retail automobile and garage business and commenced a department of Garage Accounting. We believe that we are justified in thinking that our efforts in this connection are to some extent at least, responsible for the present wide-spread and active interest in the subject on the part of garage men generally.

To learn new and better methods of keeping the record of their business operations is now the desire of almost all progressive automobile men. Better methods do not necessarily mean more books, a more intricate system, more bookkeeping labor. Better accounting means more accurate accounting; but it also means the greatest economy of time and labor.

It is our opinion that no one garage in this country has the "best accounting system" in every particular. It is unquestionably true that numbers of garages have very fine accounting systems, which, if they were available for all garage men, would be of the greatest benefit to those who made use of them individually and to the trade in general. One system may be strong in one particular or department, and weak in another; and to discover the best methods in *each department* of automobile garage accounting, and to present these methods to the trade generally, so that they shall be available for wide-spread adoption, is a task to which GARAGE EFFICIENCY has set itself.

In order to accomplish this we have

decided to inaugurate a contest, and offer prizes for the best systems of *Garage Accounting* presented to us for publication within the next ninety days. The contributions submitted will be judged on the basis of points as follows:

	Points
(1) Purchase Order, Recording and Paying System.....	10
(2) Stock Record and Inventory System	10
(3) Original Charge Forms—Methods for Making Time and Material Charges.....	15
(4) Billing and Charging to Customers—i. e., Accounts Receivable Billing and Record Methods	15
(5) Sales Classification and Method of Distribution.....	10
(6) Cash Records and Handling of Cash	10
(7) General Ledger Accounts and Classification	10
(8) Payroll System—Employees' Time and Labor Distribution Accounts	5
(9) Bookkeeper's Daily and Monthly Statements and Reports to the Management.....	15
Total	100

Horace E. Hollister, Editor of the Accounting Department of GARAGE EFFICIENCY, will be one of the judges of this contest, and two others in no way connected with GARAGE EFFICIENCY will act with Mr. Hollister. Their names will be announced next month.

For the best papers submitted on Auto-

mobile Sales Agency and Garage Accounting, outlining a complete system, and marked on the above basis, GARAGE EFFICIENCY offers the following prizes:

First Prize	\$25.00
Second Prize	15.00
Third Prize	5.00

For the best outline of methods submitted under each of the above nine divisions of retail automobile accounting a special award will be made.

Should the contest result in a tie for any of the above prizes priority of receipt of the paper submitted all other conditions being equal will decide the award.

CONDITIONS.

Papers submitted must be in English, and must be original.

Every method or form or system submitted must be in actual use in some garage or automobile agency, and that garage or agency be named.

Full privileges of publication of all papers submitted must be granted GARAGE EFFICIENCY.

No papers submitted will be returned in any case.

There is no limit on the number of papers that may be submitted by any one contestant.

Papers should be typewritten if possible. Copies of forms used should accompany the description of the method or system in which they are used. Extremely detailed descriptions and explanations are not necessary; the simple statement of the way in which each form is used, with a copy of the form, is all that is required.

counting methods may be *cut to fit* the garage man's own particular needs and conditions.

Three things have hindered the average business man from getting the returns from his accounting system and force that he pays for and is entitled to, namely: First, his own ignorance of its possibilities; second, the fact that his system usually was not laid out by an expert to fit his special needs—hence the foundation is not right, and third, the incompetence of the average office assistant.

A complete daily balance sheet and profit and loss statement is not practicable, nor are the advantages that might be derived from it at all commensurate with the extra labor involved in its preparation. A monthly balance sheet and analysis of profit and loss, on the contrary, are of the greatest value and importance to the business executive, and as it is in harmony with the prevailing business customs of monthly charges and collections, it is quite easy to prepare these statements from a proper set of accounts at a minimum expenditure of labor and time.

A daily summary of the principal business transactions, however, offers no difficulties, and should be prepared by the bookkeeper as soon as the day's entries have been completed. Placed each morning on the manager's desk, it will be found to be of the greatest interest and assistance, relieving him of the labor and annoyance of gathering the information for himself, and of the worry and uncertainty of mind consequent upon its lack.

This daily business summary should show the movement of cash, the amount of the day's sales, the month's sales to date and a comparison with the preceding months' sales for the corresponding period; the changes in accounts receivable outstanding, and the shop efficiency for the day. These summaries should be prepared on uniform sized forms or plain typewriter sheets and punched to fit a ring binder, which should remain on the executive's desk and in which the daily summaries for the month should be retained for study and comparisons.

The statement of cash is to be readily drawn from the cash received and cash paid journals and the daily balance of the office cash, and may be drawn up as follows:

Daily Business Summary	
.....	191..
CASH.	
At beginning of day:	
In bank	\$
On hand .....	.....
Total	\$
Add cash receipts .....	.....
Total	\$
Deduct total checks .....	.....
Balance at end of day	\$
Proof:	
Bank balance	\$
Cash on hand .....	.....
Total	\$

The sales report should be by departments, being drawn from the sales distribution journal in about the following form:

Department	Sales.		Month's Total	
	This Day's Sales	Cash Charge	To Date This Month	Last Month
New Car....
Used Car....
Parts and accessories
Tires & tubes
Gasoline & oil
Live storage
Dead storage
Livery
Wash rack
Car repair....
Tire repair....
Battery
Paint shop....
Totals

The statement of accounts receivable outstanding may be compiled from day to day, taking the preceding day's balance as the balance at the beginning of the next day, adding the charges, deducting amount collected on accounts receivable, leaving the balance outstanding at the end of the day. Finally, the memoranda of shop efficiency, which may be quickly drawn from a proper payroll distribution sheet, will show the hours and minutes of productive labor and non-productive labor and the percentage of each.

With this information supplementing that contained in the monthly balance sheet, itemized profit and loss statement and departmental cost sheet, the garage manager is thoroughly equipped, so far as actual knowledge of his business conditions are concerned, to lay his plans, make his decisions and conduct his selling campaign with his eyes wide open and his mind freed from the wearing strain of uncertainty in playing the game of competitive business in the dark.

HORACE E. HOLLISTER.

CARELESSNESS CAUSES ACCIDENTS.

"Statistics prove conclusively that the majority of accidents are due to the negligence of pedestrians," says Alfred O. Dunk, president of the Detroit Motor Car Company, Detroit, Mich. "For example, there are more accidents in the streets of the residence districts than in the congested sections of any of our large cities. In the suburbs pedestrians have a habit of crossing in the middle of the block and to be generally careless otherwise. In the business districts, where the number of motor cars is much greater in proportion, the person who is walking exercises much greater caution."

Government census figures recently given out show that in the five years from 1909 to 1914 the increase in number of automobiles in this country was twice as great as the number of accidents due to motor cars. At the end of 1909, according to figures compiled by the National Automobile Chamber of Commerce, there were 200,000 cars, in 1913

270,000 and in 1914 it had increased to 1,750,000.

During this time the number of deaths directly due to motor cars increased from 632 in 1909 to 2,623 in 1914. This occurred in an area containing 65 percent of the country's population. This same area had in 1913 65 percent of the country's population and the number of fatalities from automobiles increased from 2,488 in 1913 to 2,795 in 1914.

To conclude: A five year increase of 775 percent in the number of automobiles had been accomplished by an increase of only 315 percent in the number of deaths caused thereby—and a one year increase of 38 percent in the number of cars found only an increase of 12 percent in the deaths. In a few words, the motor car is not the engine of destruction that it has been painted. The fact nevertheless remains that the still large proportion of deaths and accidents are preventable and greater co-operation between the pedestrian and motorist will solve the problem.

PURE DISTILLED WATER FOR STORAGE BATTERIES.

All the new cars carry storage batteries for lighting, starting and ignition. To serve their purpose and to give the greatest life and efficiency these batteries demand pure water.

A great many garage operators are putting in stills and producing their own water for this purpose. The cost of manufacturing distilled water ranged from 1/10 to 2 cents per gallon, being governed by the capacity of the plant and the kind of fuel employed.

Usually there is a ready market for the surplus water, if any is produced, and it will bring at least 10 cents per gallon.

The installation of a still is a matter of economy. Distilled water costs 10 to 25 cents per gallon and to this cost must be added the wastage due to the breaking of carboys.

A new still is being put on the market by W. M. Lalor, Manhattan building, Chicago, that should interest the garage man who has limited need for pure water. The still sells for \$15 and will produce 1/2 gallon of water per hour. Complete information may be secured from the distributor.

BURD RING NEWS.

A. C. Preston, until just recently with the Gahrn-Pinchbeck Company, Albany, N. Y., Buick distributors, has accepted a position with the Burd High Compression Ring Company, Rockford, Ill., and will represent that company in the Albany territory.

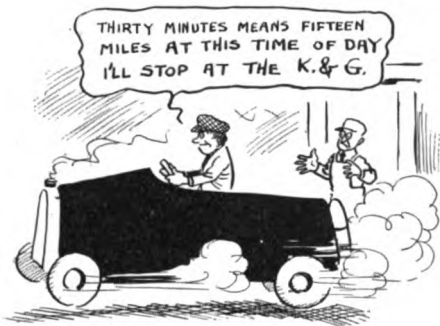
A sales office has been opened at 899 Boylston street, Boston, Mass., with E. B. Allen as manager.

The Milwaukee Office has been moved from 403 Jefferson building to the ground floor location at 813 Grand avenue.

Anything Is Liable to Happen On the Bosses' Busy Day

"A horn like that?" queried the night foreman. "Yes, we have some of them somewhere, but I don't know where the boss keeps them."

"That's a pretty note," declared the customer in disgust; "here I'm off for a day's run, my horn's out of order and



'you don't know where the boss keeps 'em.'"

"He'll be here in thirty minutes; comin' early today to get to work on Burd's car. It will only take a minute to put it on," pleaded the foreman.

"Thirty minutes means fifteen miles at this time of the day. I'll stop at the K. & G.; they *know* what they have and where they keep it," said the motorist decisively.

Beginning of a Busy Day.

The "boss" arrived ahead of schedule, his mind grappling with the mechanical problem Burd's rattle-trap car presented. "I'll tighten the bearings, get the carbon out, put in new piston rings and we'll have that old car going like a house afire when she leaves the shop. That is the kind of a job I like."

"Anything doing?" he asked as he slipped into his greasy overalls.

"Fellow in here about thirty minutes ago wanted a horn. We have them, but I don't know where they are," replied the night foreman.

"There's a dozen under the tire rack, in that cabinet," said the boss, shortly. "The box has never been opened."

"But that's locked," complained the foreman.

"Sure it's locked, and it will stay locked. 'Spouse I'm going to leave stuff like that lying loose around here? Not much."

The foreman shrugged his shoulders and moved away.

"Here, you!" yelled the boss, "help me yank the engine out of that Burd car."

An Interruption.

A prolonged siren call for the entrance eventually overcame the preoccupation of the workers.

"Someone see what that fellow wants," snapped the boss.

"He wants to see you," reported the man sent to investigate.

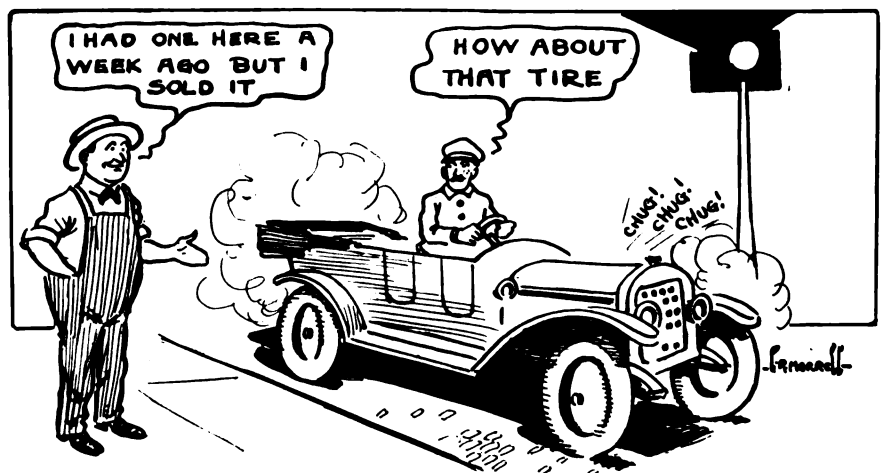
"Can't you see I'm busy?" snarled the boss. "It's a wonder some of you fellows don't know enough to earn your salt."

"Well, what is it?" he demanded as a moment later he faced the man in the car at the curb.

"I want ten gallons of gas and a new tire," replied the customer. "Then I want you to send out for the car and go over it carefully and report what is needed, if anything. I want the car tomorrow."

"Fine," replied the boss. "I suppose you think I will stay up all night with that car to find out what ails it?"

"Just as you please about that. You can have the car at noon. I do not care when you work, but I want the car tomorrow, fixed up if possible, as it stands if it is not possible to go over it. If you don't want the work, say so now."



"Sure, I want the job. I'll let you know tonight what is needed. Don't think there is much wrong with it."

"What! Two forty for the gas?" exclaimed the customer, aghast.

"Sure pop, and you're lucky to get it for that," replied the boss. "Gasoline is sure going up."

"So it is, so it is," replied the customer, reflectively. "Well, be sure to send for the car. Oh, yes, how about that tire?"

"I haven't any of that size. You can get one downtown."

"Don't you want my tire trade?" asked the motorist, an old customer.

"Yes, but I haven't any of that size in stock. I had one here a week or so ago, but I sold it."

"Shall I have that tire charged to you?" asked the customer.

"Why, yes, you might, and then I would make a dollar or two. I never thought of that. Thank you."

Back on the Engine.

"The K. & G. boys have a frame for holding an engine," protested Sam, one of the helpers. "One man can handle the biggest engine that ever was put into an auto."

"Yes, and it costs a lot of money; we'd use it about once a month, and it would always be around in the way," answered the boss, crossly.

"Fellow out here in a Ford. Wants a new spark plug. Have we got any?" asked the floorman.

"Don't bother me. Go and look."

"But the show case's locked," protested the floorman.

"Here, Sam, are my keys. Get one of those extension plugs and put it in," ordered the boss.

"What'll I charge," Sam asked.

"A quarter will do," mumbled the boss.

Fifteen minutes later Sam laid a quarter on the bench beside the boss, who demanded: "What's that for?"

"For that Ford plug," answered Sam.

The boss straightened up quickly. "I told you to charge twenty-five cents for putting it on," he yelled.

"You told me to charge a quarter," Sam answered, sullenly.

"I can't afford to have men like you around. Get your duds and get out," ordered the boss, curtly.

A Busted Radiator.

"Lady up in front wants you to look at her car," said floorman, with a glance of sympathy at Sam.

"The radiator leaks," complained the fair driver as the boss emerged from under the hood.

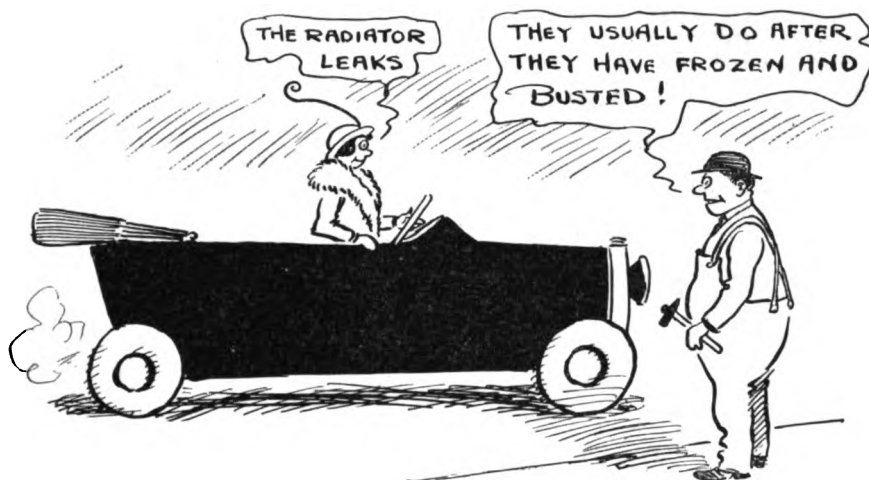
"They usually do after they freeze and bust," remarked the boss, dryly.

"Oh, dear, and I told John to be sure and take good care of the car this winter," she complained. "What in the world will I do?"

"Let her stand in the garage, fill her up every ten minutes or get a new radiator,"

King, Gould or that fellow they have in the office there is on the job and treats customers like they were white."

"That's right," affirmed Sam, "and they make more money off the stuff they sell than we make altogether. And we have the best location. Well, it ain't my funeral."



replied the boss, curtly. "Better leave the car," he added. "It is not safe to drive it in that condition."

"But I'm going to visit Mrs. Gray and I just won't go on the street car, after all I have told her about being able to drive," declared the fair customer, decisively.

"All right. It's your funeral, but fill her up before you start back; I'll send one of the boys out for the car tonight," he added.

"I saw some of the loveliest covers advertised. Have you got them?" she asked, setting the engine going.

"Nope," answered the boss. "I'm not handling covers just now."

Sam Still on the Job.

Apparently the boss was not at all surprised to find Sam patiently scraping the carbon from a cylinder. "Takes almost as much of a fellow's time dancing attendance on people as it does to do the work here," he grumbled.

Sam nodded tactfully. He seemed to try to make himself small to avoid observation.

"You'd better go to lunch now," suggested the boss, "and get back on the job soon as you can."

"Going to lunch" for Sam was not a prolonged function. He wiped the oil from his hands, retired to a box in the corner and soon was "going to his lunch" with a will.

After the boss left the floorman sauntered back and joined him. "Seems to me," he remarked thoughtfully "that the boss is overlooking his one best bet. You've got to hand it to him for knowing engines, and the innards of an automobile, but when it comes to knowing how to make money, shucks, he ain't one, two, three with the K. & G. outfit. Either

"Come pretty near being your funeral this morning."

"There are no prices on things up there. He keeps telling us to stay away from the supplies, like as though we would eat them. No one knows anything about what we have or where it is except the boss, and half the time he don't either," Sam declared.

"I read somewhere," remarked the floorman, "that the money in this business is up in front. The answer is that our boss spends his time in the repair shop. Almost as hard to get him out of there as it is to get a raise."

"Almost," agreed Sam, "but skiddoo. He'll be back in a minute."

CHAMPAIGN COUNTY ASSOCIATION STAGES STREET AUTO SHOW.

An "open air" automobile show was staged by the Champaign County Automobile Trade Association in Champaign, Ill., April 5 to 8, inclusive.

This was put on in connection with the annual Spring Style show, the Automobile Trade Association and the Chamber of Commerce joining hands to make it a big success.

There were forty booths in which twenty dealers exhibited thirty makes of automobiles. The booths were of timber and canvas. The decorations were in charge of a special committee and were tasty and uniform throughout.

An automobile parade was held on the opening day with prizes for the three best decorated privately owned automobiles in line.

On Friday the fire department gave an exhibition with the motor equipment,

showing the work that could be done with an aerial and a pumper.

Friday and Saturday nights the Chamber of Commerce provided free vaudeville entertainment on an open stage.

THE FABLE OF THE AMBITIOUS DEALER AND THE ACCOMMODATING JOBBERS.

There once was a Salaried Slave, who had a small chunk of Coin wished upon him by a deceased relative, and decided to engage in the Automobile Supply business long enough to double his Stack a few times and to show the bunch of bicycle Repair Graduates and Garage Rats what Possible Pickings there were for an Aggressive Guy with business training.

He met with nothing but Kindness from the Jobber after they had ascertained the extent of his Pile, and found that he could easily secure 30 days' dating if he did not mind losing half his profit in cash discounts; also he succeeded in persuading a Tire House to trust him with a Hundred Dollars worth of Freak Non-Skids on Consignment upon his securing a couple of Ten Thousand Dollar names on their Credit Guarantee form.

Having frequently ridden in Automobiles, he could recognize a Ford almost at sight, and had learned not to confuse the Fan Belt with the Transmission, so was able to give Expert Advice to the Average Car Owner.

His trade became brisk with the One Car Taxi Companies and other Gas Pirates who scorned to do business with the Big Stores and were willing to mortgage their employers' cars for a few days. Time on a Tire, but he yearned for Bigger Business, so arranged for an interview with the Buyer for a Department Store, where he had a pull through his wife's buying all her needles and thread.

He had prepared a Clever Selling Talk, calculated to secure at least a Year's Contract on his Line, but suffered a Rude Jolt on learning that the Magnate already had Dealer's Prices or better on Casual Purchases, though he admitted that he could not buy his Woolen Goods that way, and on taking the Dope to his friend, the Jobber, he was informed that it was a Trade Necessity to give a Dealer's Prices to Corporations without contracts for the reason that it was the General Practice, and that the Dealer should confine his efforts to the Small Consumers.

After careful consideration the Dealer finally decided to assign his Accounts Receivable to the Collection Agencies and accepted a salaried position with the Jobber in order to be close to the Real Graft.

Moral—There may be more Glory in having your name on a Business Sign, but it is more Satisfying to have it on the Pay Roll when you are working for the Boss anyway.—*Motor Trades Bulletin*.

How to Go Gunning for Trouble on a New Engine

By Charles Erhardt, Foreman Repair Department Garfield Park Auto Garage, Chicago, Ill.

One of the big things in a repairman's life is to locate trouble, particularly on a new engine. A man comes in with a car and says: "There's something wrong with the engine."

I always start the engine to see how it runs. If it doesn't run right I try out the spark plugs. This can be done by taking them out to see if they are gaping right, that is, about the thickness of a dime or a little over a thirty-second of an inch, then put them back to see if they are all working. If not, short the plugs one at a time with a screwdriver and find out which one or ones are bad.

Locating Valve Trouble.

Then take the valve covers off to see if all of the valves are free, that is, if they are seating properly. The best and quickest way is to turn the engine over until the cylinder that is missing is on compression stroke. To find this stroke watch the inlet valve open and close, then turn engine to top center, which is marked on flywheel, and by watching the pistons—if you cannot see the pistons put a piece of stiff wire down in cylinder and turn engine over until piston stands still at the top of its stroke, which is top center and also firing center—then get hold of the two valves and see if they have the proper clearance, which is about three-thousandths (.003) of an inch. If they are tight turn the adjusting screws down until you can feel just a little play in them. While you have the valve cover plates off it is a good thing to go over all of them to make sure they are all free. When you tighten the lock nuts be careful not to tighten the valves again, or you will be just where you started.

A Road Test.

After going over the valves start the engine again and if it runs all right take the car out on the road for a trial. Other troubles are liable to develop.

Let us assume that an exhaust valve was a little too tight in the adjustments just explained. The cylinder that was missing will probably hit on high speed, but will not hit when throttled down to between five and ten miles an hour and the car will jerk and buck like it was falling apart.

My method of meeting that situation is to take out the valve that was too tight, clean carbon off seat and regrind it and the chances are this will do away with the jerking. This, I find, is always the trouble with a new car from the factory.

PRACTICAL REPAIRS.

This is the lead-off article of a series on practical repair work.

It tells where and how to look for trouble.

The repair man is an M. D.—Doctor of Motors.

Before a remedy may be prescribed the trouble must be located.

Every repair man in the country is invited to contribute to this work, to ask questions, and to tell about his own methods.

It is up to the repair and improvement men of the industry to keep the cars on the road.

Your co-operation and support will be welcome, for

THIS DEPARTMENT IS FOR YOU.

Back Firing.

A car may run all right, but trouble may be caused by back firing. To locate this trouble look for an open inlet or a valve stem might be sticking in a valve guide. The carburetor adjustment may be too lean, or perhaps there is an air leak in the carburetor flange or the inlet manifold, or some one who did not understand the work may have got two of the wires crossed, which I have often found on six cylinder engines.

I have explained about the valves so I will take up the carburetor. First advance spark about three-fourths way up. You will find the engine is not running right. Turn the low speed needle, if there is one, to the left or right, whichever way gives it more gas, and keep turning it until engine is running smooth on low speed. Sometimes it will backfire or spit gas. There is always a dull backfire on high speed with a set carburetor, that is, with a carburetor that has no adjustment except a spray nozzle, which is always supposed to be right. But it happens that a larger one is put in sometimes. If there is an air adjustment give it more air by releasing the spring tension; if not, take out nozzle and get a smaller one. If you are near a service station go to them and they will make it right.

Readjusting the Carburetor.

We are now getting a rather low grade of gas and it is pretty hard to lay down general instructions or to tell how to proceed until you are up against it or find out just what is wrong.

One cause of trouble arises from adjusting in a different climate and that accounts for a lot of difficulties we encounter. Following the methods outlined will bring the engine around to scheduled performance.

How to Find Air Leaks.

Air leaks are a cause of trouble, and they are difficult to locate. I set about in this way: Examine all nuts on intake manifold and see that they are tight and also on carburetor flange. If the engine does not then run right, if it still misses on the same two cylinders, take off fan belt and put some gas around all the joints of carburetor and manifold. If the engine picks up and starts running and hits on the cylinders that were missing, it shows that one of the gaskets is blown out or that the face of cylinder is out of square with manifold or manifold to cylinder face. To get car out I always put a couple of gaskets in where it leaks with plenty of white lead or graphite and oil. If this does not remedy the situation, take off manifold and see if it is square by putting a straight edge over all port holes on manifold and the same on the face of cylinder ports and you probably will find one of them out just a little. If on manifold, I would advise filing it square and be sure to file it straight. Apply the straight edge often to keep the line-up.

If on cylinder, try loosening cylinder at base and see if it will come over in line, a thing which I have often done.

If you are handling a block motor look for cracked ears on manifold, as that is liable to happen when tightening it up on account of gasket doubling or a piece of something gets in there and causes it to crack by putting too much of a strain on one car.

There also are many other air leaks, such as a sand hole in piston or a cracked valve, or a hole in a valve or a sand hole in a cylinder wall which will permit water to get into the combustion chamber and short the plug. There are too many things to mention all of them at this writing, so I will close this part of air leaks and go over to pistons.

Inspection of the Pistons.

The pistons may be too loose and when running idle they will run quiet, but just as soon as the car is going on the road and you put on the gas you get what is known as a piston slap. You get it on a retarded spark as well as on an advanced spark, if the spark is set to occur at the proper time. Otherwise you have a spark knock and this can be eliminated only by resetting the spark.

To test for loose pistons throttle the car down pretty well, say to ten miles per hour, and give engine the gas with a retarded spark and it will sound as if

there were a bunch of tin cans in the cylinders and you may be sure your pistons are loose.

Looseness may be due to improper line-up at the factory, causing them to wear on the side they are "off" on. The only thing to do is to have cylinders rebored and new pistons made, or get new cylinders and piston rings and then be sure to line up connecting rods.

The work should be done in this way: If cylinders are "off" get a six inch combination square, or an eight inch and a twelve inch, turn pistons to top center or the crank shaft up and down, looking down at it. Take the small square and put it on the side of the piston, away from wrist pin, then put large square in center of crank case and along the face of the piston and then see if the piston lines up with the small square and then the piston should be in line with the large square also. If not, bend it until it is and do the same to all the others.

It is best to take pistons off after lining them up, as they will only be in the way of the others. Be sure to give clearance on both sides of the connecting rod where piston is fastened to same. That calls for a lengthy explanation which I may give later.

When Pistons Pump Oil.

Perhaps the pistons are pumping oil, which may be due to having too much oil in the crank case, or the piston rings are too small, or are not square on face or they may have been fitted too tight and become stuck on pistons, which also would cause them to pump oil. At times a little kerosene poured in the cylinder will loosen them up, but the safest way is to take off the cylinder and refit the rings, giving them an opening of about six thousandths (.006) of an inch. The top should have a little more.

Sometimes when running the engine will begin to work hard if the pistons are tight. This makes it difficult or impossible to turn the engine over. That may be on account of lack of oil or caused by grit getting in the cylinder and starting to cut and causing the piston to stick. To remedy this put in plenty of kerosene and allow it to cool off, and if the shaft did not burn out you can start car after putting oil in cylinder, draining oil, if any, out of crank case and putting in fresh oil. Be sure to run engine idle for a few minutes at slow speed and then run car at moderate speed.

If it does not give you any more trouble, well and good, but if this treatment does not do away with the trouble have cylinders removed and refitted.

Magneto Troubles.

There are so many kinds of trouble with magnetos that it is a pretty hard thing to tell what the cause may be until one is pretty well acquainted with the various types.

If it is a new car it may be easy to locate the cause of the difficulty. If it is a high tension magneto, that is, a magneto without an induction coil, perhaps it is not delivering the spark to one cylinder, or to two of them. If two are missing, look for trouble in the breaker box and see if both of the segments are breaking right. Perhaps they are sticking or stick at times. The remedy is to take out the breaker and free it up so that it works, then adjust points and that cause of trouble will have been eliminated.

Perhaps the trouble is due to a loose wire or a single strand of wire shorting across to another terminal, producing about the same results.

When an intake valve is open or the car is wired wrong the engine has a tendency to kick and is liable to break an arm.

Another possibility of trouble is a short in the collector ring or it may be cracked. In that case you get a spark once in a while, while at other times you cannot get a spark.

Repairing Magneto.

To repair, take off magneto and disassemble, bearing in mind the method of construction, and go over it piece by piece and if there are any worn out parts or if the points are worn off, replace them. If the collector ring on armature is cracked send it to a place where it can be properly repaired.

If it is a low tension magneto look over all the wires and see that they are tight and also at the coil wires to see that they are tight. If both are O. K. examine the breaker box, then do the same thing as with the high tension.

Old magnetos may be demagnetized and must be recharged. Possibly the switch may have been left off the battery side and the current of the battery may have run the wax out of the coil. In that case the engine will run on magneto, but will not run on battery. The best thing is to take it off and send it to a place equipped to make repairs.

There are so many kinds of ignition that it is pretty nearly impossible to go into every detail at this writing.

Locating Other Engine Troubles.

If a car comes in and the driver says there is something wrong with his engine I take the car out on the road and first test for a connecting rod being loose on main shaft bearing. If a connecting rod is real loose it causes a very dull thud that is very noticeable. If it is only a little loose you cannot hear it in ordinary running, and you must put the car to a hard pull. If there is no place to do this, put on the brake, feed the engine the gas and you can hear the thud very plainly.

If the car has two good cylinders and two bad ones you will find that it either

needs new piston rings or ought to have the valves ground.

A loose wrist pin has about the same sound as a loose connecting rod, but you cannot hear it on a retarded spark unless it is very bad and that makes it hard to distinguish between them.

If main shaft is loose put a jack under the flywheel and move it up and down and you can nearly always tell in that way. If running and you accelerate the engine you will hear a loud knocking and as soon as the engine gets up speed you cannot hear it; do this a couple of times and you will be sure of it.

When looking for knocks it is a good plan to examine flywheel bolts to see if they are tight. That is a hard knock to locate.

Next time I will give you transmission, clutch and differential troubles.

CHARLES ERHARDT.

WATCH THESE TIRE DON'TS AND SECURE GREATER MILEAGE.

The B. F. Goodrich Company, of Akron, Ohio, is urging upon motorists that they give their tires more attention. The points to watch, which follow, are applicable to all makes of tires:

Don't overload your tires. A tire will "give out" sooner from overloading than from almost any other cause.

Don't underinflate. Underinflation and overloading account for fully 90 per cent of all tire trouble. Use a Goodrich Tire Caliper or a pressure gauge, and consult carefully the weight and inflation schedule, given in our "Users' Net Price."

Don't neglect small cuts. These will often extend farther than you think. Dirt and wet get in, the fabric rots and a blow-out follows.

Don't run in ruts, car tracks or against curbing. The side walls of a tire are much thinner than the tread and will not stand this kind of usage.

Don't start or stop suddenly or skid around corners. The strain set up in your tires is terrible. Don't run on a flat tire. Better run on the rim if only for a short distance.

Don't let oil, grease or gasoline remain on your tires. They all destroy rubber. Wash only with pure, cold water and a little soap.

Don't keep a spare tire out of use too long. Change over occasionally. A tire lasts better in use than exposed to the sun and rain on the running board.

Don't let your rim get rusty. Common stove polish will keep them in good condition.

Don't let the weight rest on a deflated tire. Jack up the wheel or remove the tire. Don't let your axles or rims get bent. If your wheel doesn't run free your tire will suffer.

Don't pinch the inner tube, when applying or removing an outer casing. Pass the hand around inside before re-applying the outer bead. Don't try to force a tire onto the wheel. If it goes unusually hard, look for some trouble. Perhaps the valve stem isn't in place properly.

Making Money Out of Tire Trouble

Tire repairing, being designated by the more ponderous name "vulcanizing," has a shade of mystery to some people who have never taken the trouble to fully inform themselves. The facts are that everyone with mechanical ability can mend tires perfectly and that the garage which passes up tire repairs is overlooking one of the most profitable opportunities connected with the business.

Tires are built up of layers of rubber-filled canvas which are vulcanized together. This "carcass," as it is called, is covered for protection against wear and the rotting effect of moisture by a heavy layer of tough rubber, known as the tread.

When we say a tire "blows out" we mean that owing to some accident the fabric has been ruptured and torn clear through by the pressure of the air inside of the tire. To repair the blowout we must first reinforce the fabric with new canvas and then we must seal the hole in the tread with new rubber.

The "Wrapped Tread Method" performs both of these operations at once in the simplest possible manner.

In order that you may see this for yourself and be able to compare the simplicity of this method with the antiquated methods used by some repairmen we shall describe the making

of a typical blowout repair. No two repairs are exactly alike, but the principle is always the same.

Suppose you have a tire that has blown out, as shown in Fig. 1. The first thing to do is to clean the hole through the tire and for some little distance around it, both on the inside and outside of the tire. All dust and disintegrated rubber must be removed. This is easily done by scraping the inside of the tire and washing it with gasoline. (See Fig. 2.)

The next step is to coat the injury with vulcanizing cement. (Fig. 3.) The cement is smeared in between any loosened piles of fabric at the ragged edges of the damaged part. On the inside of the tire the cemented surface should extend for about six inches in every direction all around the blowout, as shown in Fig. 3. When the first coat of cement has dried, a second coat is applied and allowed to dry.

After the cement is dry build up your repair on the inside of the tire. First cut a rectangular piece of repair canvas about an inch larger in each direction than would be required to cover the hole. This is placed over the blowout and carefully



Fig. 1.

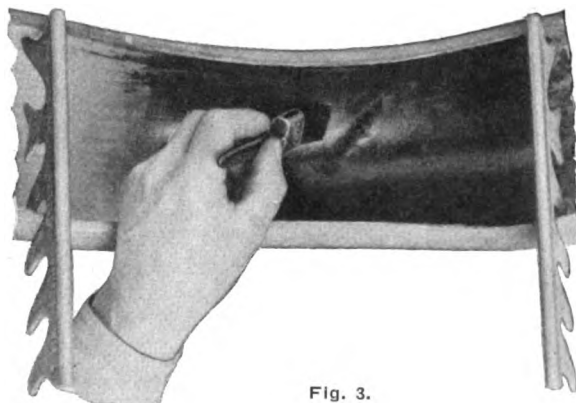


Fig. 3.

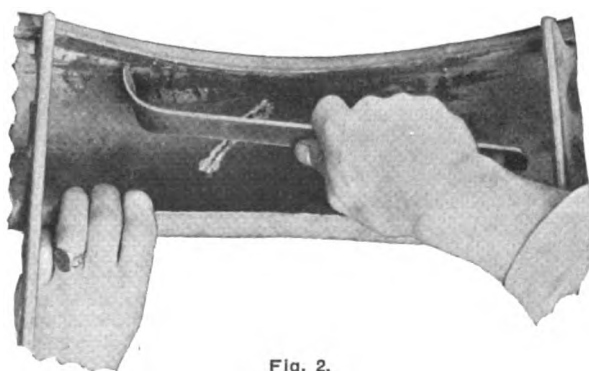


Fig. 2.

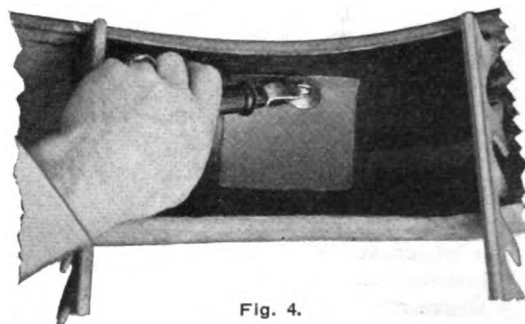


Fig. 4.

fabric you have put inside of the tire gives all the strength required and all that is needed is a waterproofing plug.

The mending of the outside of the tire simply requires filling the cut with scraps of raw rubber (Fig. 7), which do not need to be cut to fit the hole because the raw rubber melts and flows into every crevice when heated.

Unless the vulcanizer is being used continuously and is already hot, you will have it heating for the last twenty min-

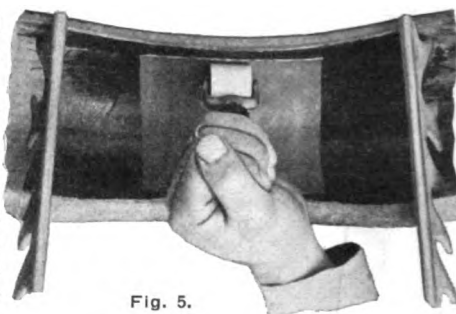


Fig. 5.

utes, so that by the time the last step of repairing the tire is finished the vulcanizer will be ready. (The Shaler vulcanizer, with its automatic temperature regulator, does not need to be watched while heating or while vulcanizing and you can go right on getting repairs ready while steam is being raised. This saves a great deal of time.)

The tire is hung over the inside form and wrapped with tape, as in Fig. 8. Then by tightening the tension screws underneath the heater, an enormous pressure is produced that forces the repair and tire into the most intimate contact possible. Soft rubber "bead strips," shaped to fit close to the bead groove, go under the tape to prevent crushing the bead or clincher and to give a firm pressure on the sides of the tire, which is necessary in mending rim blowouts.

The outside heater is next clamped

rolled down. (Fig. 4.) Another layer of canvas an inch larger all around than the first is then applied and rolled into place. (Fig. 5.) For an ordinary sized tire four layers of canvas are sufficient, each being larger than the preceding one. After these have been put in place the inside of the tire will look like Fig. 6.

Now turn the tire over and fix the gash which remains on the outside. So far as this part is concerned, the process is exactly the same as if you had a superficial tread-cut to mend because the

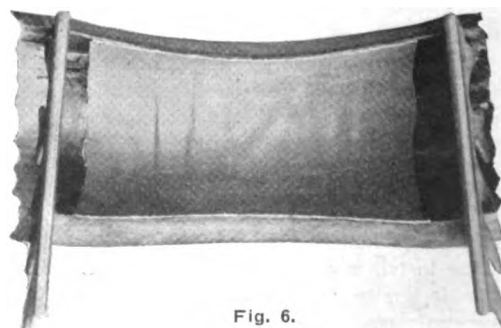


Fig. 6.

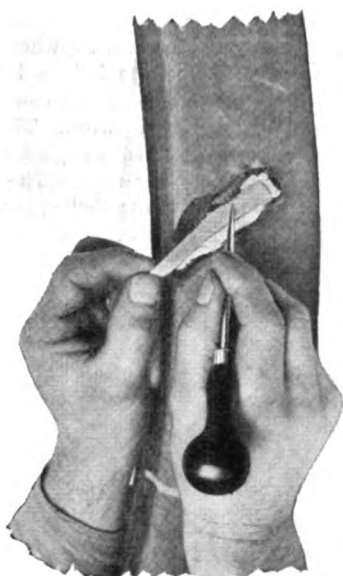


Fig. 7.

lightly over the repair, as in Fig. 9. It does not need to fit close to the tire because the wrapping of the tape shapes the repair and gives all the pressure that is necessary. Thus all sized tires can be mended without extra forms or moulds. The inside form alone would cure the repair as well as any vulcanizer could which uses the airbag or pad system and cures only from the outside. By using this additional outside form, and heating from inside and outside of the tire at the same time, the repair is cured very quickly—in from forty minutes to an hour—and all tendency toward overcuring the tire is eliminated.

After the repair has cured for the proper length of time, the tape and bead-strips are removed (they are not injured by the heat, and should last indefinitely), the tire is taken off the vulcanizer and after a few touches with sandpaper to remove any rough edges is ready for your customer.

In case of a blowout close to the rim, follow the same method except bring the last layer or two of fabric clear around the bead and up the outside of the tire, as shown in Fig. 10.

Not only is the "Wrapped Tread Method" so simple that anyone can easily understand it without requiring personal instruction, but it has a great many other advantages over the processes used by

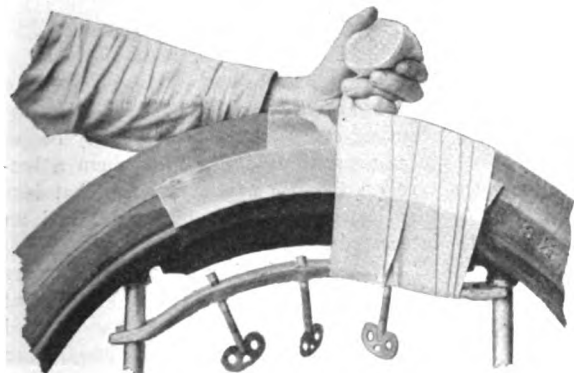


Fig. 8.

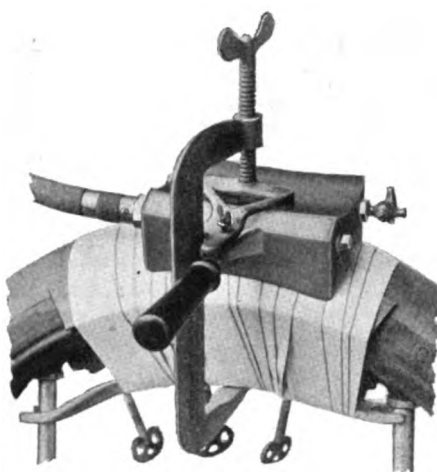


Fig. 9.

some repairmen who did not take the opportunity to inform themselves regarding it before they purchased their plants.

These are some of the advantages:

Inasmuch as the reinforcing canvas is all applied to the inside of the tire, it is unnecessary to cut away and replace a lot of sound tread rubber, as is done by the sectional method in which the repair is built up from the outside of the tire. Moreover, this method of building up a repair does not weaken a tire by leaving weak spots at the ends of the repair. The patch goes on the inside, where the pressure of the inner tube tends to hold it more tightly in place, not on the outside, where the pressure inside of the tire is continually trying to tear it loose.

The appearance of the repair affords a strong contrast to the unsightly section. Nothing is exposed on the outside except the plug of new rubber that fills the original hole through the tire. But a small surface of actual repair is subjected to road wear and a very little running makes it invisible.

The economy of time and repair material required is obvious, both being reduced 50 per cent over the old methods.

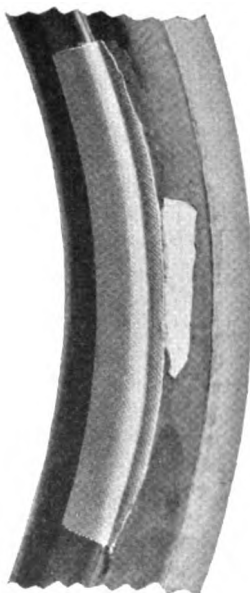
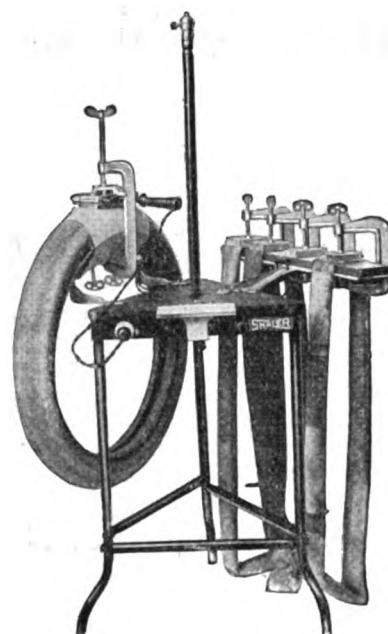


Fig. 10.

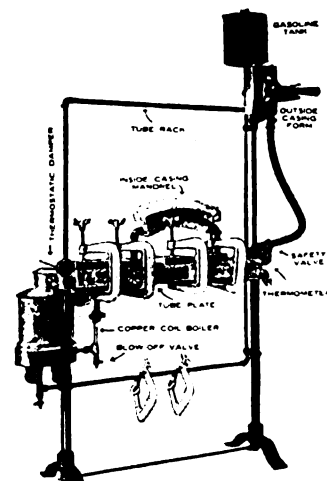


Shaler Electric Vulcanizer.

The "Wrapped Tread Method" needs no extra moulds or forms for mending all sized tires, since the pressure is applied by a wrapping of tape, which is flexible, and conforms to all sizes.

How Tube Repairs Are Made.

Tube repairing is simplicity itself. It is as easy to vulcanize a tube as to stick on a temporary cemented patch. A puncture or slit in a tube is mended by first



Shaler Gasoline Vulcanizer.

cleaning and cementing the injury, then laying a small piece or strip of uncured rubber in the cut and another over the cut. The tube, prepared in this way, is clamped down on the flat surface or "tube plate" of the vulcanizer and in fifteen minutes the repair will have welded into the tube so smoothly that it can hardly be detected. As many as eight tubes can be cured at once in fifteen minutes, and a casing may be curing simultaneously. Thus you can see that though the vulcanizer heats as quickly as one tube could be gotten ready and is especially economical to use for rush jobs, there is plenty of

capacity for turning out as many as 200 tubes and a dozen casings in a day.

We have treated the actual procedure of tire repairing very briefly in order to show you that it is a kind of work that with a modern vulcanizer does not require mechanical ability or experience to enable one to start.

Profits in Tire Repairing.

The next question you will want to ask is: "Now that I am satisfied that I can do the work, how much can I make on tire repairs?"

That depends, of course, somewhat upon local conditions. On tube repairs materials cost 2 cents and require an av-

erage of less than fifteen minutes' time; charges range from 25 to 50 cents (usually the charge for mending a tube puncture is 35 cents). The casing repair, just described, needed 46 cents worth of material and less than an hour's time. If it were on a 3-inch tire (Ford size) the charge ought to be about \$2.50. On larger tires as much as \$4 is charged. Thus it is easy to believe statements frequently received from repair men who say they make as much as \$20 profit from a day's work.

With a modern plant there is little "overhead" expense. The initial cost is low and the cost of operation is only a

few cents per day. The machine is so compact that you can set it anywhere that there is room enough to hold a bicycle, and it is so portable that you can carry it anywhere you want to work. There is no heavy separate boiler or piping that must be built into your shop. The temperature should be controlled automatically so that you can devote all of your time to preparing repairs without having to give a moment's thought to the tires that are being vulcanized. Then there is no chance of overcuring repairs except by intentionally leaving them on the vulcanizer three or four times as long as necessary for proper curing.

Told by the Boys of the Road On the Boys in the Garage

An Unusual Specimen.

"I'm selling piston rings," remarked one of the group as they waited for the train. "Was over in Mayville yesterday and called on a prospect. The owner was sitting at a desk writing and figuring to beat the band. He quit when I went in, looked at my card, told me to be seated, then swung around to face me.

"I showed him my rings and he asked several leading and pertinent questions. He examined it very carefully and finally said he was sorry, but did not think there was enough difference to justify him in changing.

"I started in with a line of selling talk and he shut me up in a jiffy, made me feel a trifle small, too, for he had given me a fair hearing.

"Well, there was nothing left to do but to get out, so I got. I was amazed when I looked at my watch to find I had been in the place exactly three minutes. That fellow is all right. His place is clean and he is on the job every minute and he's boss. No doubt about that. I'll have him for a customer some day."

The Same, Only Different.

"Well," replied another salesman, "I had a little experience of my own, just like yours, only different. I went into a garage in a large city. They told me the boss was in and I went on a still hunt for him.

"Found him in a corner with one of his repair men. They talked and argued for ten minutes whether the things were hindsides first or tother way. I say the thing, because they did not call it by name and there was not enough room in that cubbyhole for me to get a look.

"The next five minutes the boss spent expressing his opinion of a salesman who wanted to interest him in a preparation to prevent tire punctures.

"That salesman was not thrown out

bodily, but he felt worse when he reached the walk than if he had been kicked out.

"My turn came next. I had never seen the boss before and I do not think I ever had done anything to hurt his feelings or his pocketbook. He turned on me savagely.

"I'm stocked up," he snapped.

"But I have an unusually fine lubricating oil, and an exceptionally attractive proposition," I argued.

"Not interested in the least. Buying on a contract. Busy now."

"Finally I succeeded in getting him to look at my sample.

"Too thin," he said, shortly "Got anything heavier?"

"I showed him a heavier oil, explaining that it was not a motor oil, and that we did not recommend it for motors. Going back to our motor oil I began on its viscosity. I think it was on the point of his tongue to tell me he did not use viscosity and did not intend to, but he didn't and finally said he was busy and would I please understand that he was not interested in me or my goods, only he did not put it in that way.

"So I got out. That man is running two garages and is making money. They are dirty, evil appearing places, but they are bringing in the bacon."

A Case of Thrift.

"A friend of mine, a pretty good fellow, too, runs a garage," said the cover salesman. "He got a call for a car to take a sick man down town; he does a little livery business. He charged the customer \$8 for the trip. The next day the sick man wanted the same car.

"After an hour's delay my friend called up and said the car was almost ready to send over; then he asked if the sick man would have any objections to carrying one of the boys from the shop downtown.

"That seems to me to be almost the

limit and then some. Here was a customer paying \$8 to keep an appointment with a specialist who was held up an hour and then asked to carry a mechanic in greasy overalls with him to save the garage man street car fare."

One Man's Trouble.

"Every time I go into a garage I make a bet with myself that I'm going to pick out the owner, first pop," said the tall fellow in the gray hat.

"I now have a batting average of about .283. In the better managed places there's no trouble, of course, but where the owner spends most of his time in the repair shop it's a gamble on who's boss.

"Last winter I went into a garage and found four fellows playing cards. That garage, I will admit, was mostly a repair shop and business was slack.

"I was selling equipment then, machinery and tools, and am now, for that matter, so that would have been a good time to go into the merits of what I had to offer.

"I was told the owner was not in, that they did not think he would be in that day and possibly not the next. I was back there last week and the man who gave me all that misinformation turned out to be the owner. I sold him some tools and think I'll sell him some more.

"Then, because of a chance remark, I went back to look at a piece of work on his lathe. They were working it wrong and I set them right. Then, notwithstanding every man was busy, they began to ask questions and I gave them a lecture on the use of the lathe. That lecture lasted thirty minutes, and I had an interested audience.

"Before I left I recalled my former visit. The owner laughed and said that was one of his busy days, that he had nothing to do and that the boys were helping him do it."

The Change in Conditions.

"I have been making the garage for a great many years," began one of the older men of the group.

"Ten years ago, or even five years ago, the garage owner was flattered by the attention he received from the boys who came around, fed him good cigars and new stories and catered to him. Then you could have hours of his time and his undivided attention. This was particularly true of the fellows located in the country.

"By and by the novelty began to wear off. The traveling man abused his welcome. Many garage operators were loaded up with stuff they could not sell. It turned out that the traveling men were better salesmen than the garage operators were buyers.

"The reaction has been truly appalling. You can't sell gold dollars for 40 cents to some of the garage men now.

"In a general way we had this coming to us. We were out after the garage man's money and the first fellows that came along got it. We were telling him questionable stories rather than telling him how to sell the goods we sold him. We were talking about the millions that were being made in the automobile business instead of telling him how to make a good living at the time and lay the foundation for a substantial business.

"We can look back now and see the mistakes we made. Then, if we have the right sort of stuff in us, we set to work to undo the damage."

The Progressive Spirit.

"It seems to me that we are about measuring up to our responsibilities," thoughtfully interposed the representative of one of the larger tire manufacturers.

"We may, in part, be responsible for existing conditions. We can admit that, but we get very little encouragement when we go to a man, offer him the very highest type of tires on the market, offer to aid him to install a profitable repair department, to help him to advertise, to give him credit, if he is doing business in the right way, and to work with him and for him.

"Many times the answer I have received has been: 'I'm not interested, and can't you see that I'm busy?'"

"I run across the same thing, of course," chimed in the tall man. "We are trying to get the owner out of the repair shop and up in front meeting his customers."

"The process of getting him out involves considerations that some of us have not taken into account," observed Shorty. "The owner may be the only man who really understands an automobile engine. He really cannot afford to leave important repairs to his mechanics. If he knows his business he will get by. You may not think he is giving your sug-

gestions much attention, but he is. He is working out his own problem. It is a slow process, in some cases, because he must make a living and must build up his stocks, improve his buildings and do a

lot of other things which we may not be taking into account."

"Well, here's our train. I guess we can leave the subject here," said the old timer, cheerfully.

"The Public and the Garage"

By ROBERT BLAND

President National Automobile Trade Association

With all sorts of men operating garages in all sorts of ways and with all manner of men, women and children patronizing garages, friction and dissatisfaction are inevitable.

The garage business is too new and conditions have been far too chaotic to permit the adoption and observance of a code of ethics. It is a case of go-as-you-please on the part of the garage owner and also on the part of the public of get-what-you-can, keep-what-you-can.

There are no thoroughly understood principles to guide the men who comprise this industry. The outcome is a series of petty impositions on the part of the public and of a spirit of retaliation on the part of the garage owner.

Customs Not Standardized.

When the motorist thinks about garage men, garage prices and garage customs, he recalls the few who have made a success in the business and forgets about the many who have failed.

He also is inclined to forget about his own unreasonableness and to remember instances where the garage owner was unreasonable.

Now the garage is the intimate and personal point of contact between the public and the manufacturer of automobiles and automobile supplies and accessories. In far too broad a manner this has become the sore spot of the industry.

Conditions Must Improve.

Nothing inherent in the industry or the men who comprise it stands in the way of radical improvement. The live men of the business are engaged now in perfecting ways and means of standardizing and systematizing practice to the end that the garage man and his customer will both be assured a square deal.

This is a monumental task. The material upon which and with which we must work is composed mostly of human nature and that is the most difficult substance to handle there is.

Among garage owners you will find machinists, blacksmiths, chauffeurs, liverymen, failures in other lines, also men of capital and ample business experience. They are crowding into the garage field under the impression that a competence, if not a fortune, awaits each and every

man who in any manner becomes identified with the automobile industry.

The man who knows nothing about conducting a business competes with the man who does. There is a struggle for trade evidenced by cut rates, free service, loose business methods, inefficient workmen, loss of legitimate profits, and in many cases loss of part, if not all, of the investment. That is what the garage man gets out of it. The public gets poor service, which in the end, is the most costly service it can secure.

Impositions.

In almost every garage may be found facilities for inflating tires. It costs something to buy, to install and to operate an air compressor, but the public is invited to help itself to "free air." The motorist frequently ask an employe to put water in the radiator, asks for a wrench to tighten a nut, talks shop a moment or two, perhaps, then with a "thank you" or without one, drives away.

It is the general custom to provide free air and that is about the only general custom in existence today. Using this as a lever, the thrifty car owner comes forward with a request for tools to make all manner of repairs and if occasionally he drives away with wrench, pliers, screw driver, an oil-can, or something of even greater value, it is a plain case of thoughtlessness on his part.

The most unreasonable car owner the garage has to deal with is the one who insists in borrowing the garage owner's sponge, chamois soap and water to wash or have his chauffeur wash his car. Practices of this kind are not tolerated in a first-class garage and a man who would make a request of this kind is on par with the man who keeps posted on events of the day by borrowing his neighbor's newspaper.

Some garage men offer no objections when a motorist drives in and uses all the facilities in the shop to change a tire. Such motorists apparently regard the garage as a semi-public institution and believe the free and unlimited use of tools and equipment is a public prerogative.

When the motorist drives away the foreman of the repair shop growls sourly: "That fellow ought to be pushing a

[Reprinted from the April 15th Issue of The News-Index, Evanston, Ill.]

wheelbarrow instead of running a fliver, if he must monkey with machinery."

Home-Made Repairs.

Many cars are seriously injured by the owner's attempts to make repairs. Garage men are inclined to chalk it down and when one of these men finally show up with an appeal for aid he is considered legitimate game.

The garage man makes the major repairs and charges a fair price for it. Then he charges for the repairs the owner made himself, for all the damage done, for wear and tear on the equipment he has used, for the equipment itself, for the air the car owner breathed and for a few other incidentals, none of which appear in the itemized bill.

Insisting on What Is Right.

If garage owners insisted on their rights from the beginning there would be no excuse for a comeback of this character, but under the circumstances the garage owner feels he is only getting what is due him. He figures he must keep ahead in some way, and this is one of his ways.

Many garage owners are equipped to give and do give good service whether or not the demands made on them are reasonable.

This other class that does not fully understand its own rights in the premises gets along as best it may. The conditions are bad and the service given is uncertain at best.

Blame It on the Garage Owner.

While talking with a friend recently a lady came in and demanded to see me. She was provoked, but not beyond the power of expression; angry, but her enunciation was clear as a bell. She has an extensive vocabulary.

After she left, my friend remarked, jokingly, that a few competent garage men who could distinguish an automobile from a push-cart ought to do pretty well by capturing the trade of intelligent people.

"That did sound pretty rough, didn't it?" I said.

"It surely did," he replied. "What have you been doing to the lady's car?"

"Oh, I haven't seen that car in months. Something went wrong, she thought she must have someone to blame, so came in here. She is keeping her car at home and doing her own charging. Charged the car last night and started downtown today. Did not have enough juice to get back."

The garage man is the nearest human that can be held responsible for the performance of a machine and some people make a practice of calling him good and hard when a car falls down for any reason.

Foolish, of course, but there are other things more foolish than that in the trade.

(Continued next week.)

Practical and Time Information On How to Sell Tires

AKRON, OHIO, April 12.—Editor GARAGE EFFICIENCY: You surely put something up to me when you asked me how the garage man is going to get the trade in his locality, as you did in your letter of March 29.

Will you tell me why it is that you would rather buy things at Marshall Fields than at the little store around the corner on Wilson or Sixty-third street, or wherever it is you live? I think that, in some measure explains the reason why the garage man is not getting his fair share. In other words, the man who is operating a big store downtown is distributing the cost of his overhead expense over a large number of products, and it is, therefore, able to maintain a nicer, cleaner, more attractive store—is better able to induce people to buy than the garage man who necessarily devoted the most of his time to dirty, greasy menial work.

Where does the answer lie? First of all, by systematic education of the trade by the dealer. If the dealer impresses upon the man in his neighborhood that he can furnish any make of tire which may be desired in any size, and then if he carries a large enough stock to supply the needs of the motorist upon demand, there is no reason than a price reason why he should not get the business.

If the large stores in the loop are selling tires below list price, as you indicate, then there is but one thing the garage man can offer to offset it, and that is SERVICE. Whether it is true in your neighborhood I cannot say, but I know that in this part of the country a great many garage men maintain service cars which will go out in the country five or ten miles and carry tires to the stranded customer. Such service is of incalculable value when a man needs it. It's like a match—not worth much when you are fully equipped, but if you want a smoke real bad and have everything but the match you would give a dime for one.

This touches upon one thing further. It is actually true that a great many tire companies have padded price lists. In other words, the list value of the tire is inflated with the idea of giving the dealer a margin so he can cut his prices and still make a reasonable profit. If you judge a tire by its list price you will go wrong nine times out of ten. A much better estimate can be secured from the price made to the dealer, and even that is no criterion for there are some companies that purposely raise the price of tires, both to the consumer and to the dealer, simply to give the idea that they have built quality into their tire, when in reality the added value is not represented

ed by any greater cost of production than tires of lower prices.

In an endeavor to eliminate these padded prices the B. F. Goodrich Company a year ago last February announced its fair-list prices. At that time we cut down our prices to the dealer to the absolute minimum and gave the dealer a reasonable profit of varying from 12 per cent to 20 per cent, depending upon the size of the tire and the frequency of sales. Figuring the cost of doing business at 10 per cent you will see that there is not a great deal of margin for the man who sells tires, but we did force a great deal of padding out of other price lists. This padding was a detriment to us as manufacturers, since people were not buying tires—they were buying discounts, and because of our price list we were unable to compete in the matter of discounts.

This may seem a little strange to you, but it really shows how the dealer, by educating people in his vicinity to the things outlined above, can draw business to standard makes and can make the people realize that when they do buy first-class standard makes they will get a dollar's worth of value for every dollar of cost and no more.

Should there be some cutting of prices on these standard makes the dealer must offset it by the service he can offer or else he will not get the business.

There are two concomitants to this proposition—he must make his store as attractive as possible with a complete line of tires and accessories, and he must advertise the fact that he is willing to give his service to these people who will reward him by giving him their trade.

If a man knows before he goes out for a spin on a Sunday afternoon that if something happens he can call up the dealer without extra charge, he feels good about it. On the other hand, if he knows that his chances of getting help in case of accident are slim because he has been patronizing a downtown store and saving \$1.12 once in three months, he will try to get on the good side of the dealer after one or two disastrous experiences. I know several dealers who refuse to send their service car out to anyone but their customers. Sometimes they win customers by making a dicker over the phone. If there is a man in trouble they offer to send their service car to his assistance if he promises to send his business their way in the future, and with a car laid up three miles from anywhere a man is willing to offer his trade to almost anyone who will help him out.

B. F. GOODRICH CO.,

Lyman L. Weld, Advertising Dept.

Association Intelligence

WORK OF THE NATIONAL.

Definite progress has been made by those in charge of the work of the National Automobile Trade Association.

Time has been required to perfect machinery for starting and carrying on the undertaking.

Keen interest has been manifested by the live garage operators and car dealers throughout the country. Local and independent associations also are getting in touch with National Secretary R. A. Wilson's office, asking about the plans, the progress and the scope of the undertaking.

Current Activity.

Things are boiling down in the Buckeye state. The old locals are being renamed and enlivened.

A special meeting was held in Akron, Ohio, in March at which the name of the local association was changed to Akron Automobile Trade Association. There were twenty-two members present at the meeting.

Another important step taken was to increase the dues from \$10 to \$60 a year. A secretary, to give his entire time to the work, has been employed. Within a very short time it is thought every member of the trade in Summit county, Ohio, will have become identified with this local and through the local with the Ohio Automobile Trade Association.

Changing the Name.

Ohio is planning to have the strongest state organization in the country by the time the next annual convention is held.

A meeting of the board of directors, with every member present, was held recently. The new name, "Ohio Automobile Trade Association," was adopted unanimously.

A. J. Peebles was elected permanent secretary. Plans for an active campaign were considered and adopted.

Cincinnati Organized.

A well attended meeting of garagemen was held in Cincinnati April 3. Nearly the entire board of directors of the state association was present to aid in ushering into the fold a strong, verile Cincinnati local.

This meeting ended with a dinner at the Gibson hotel, with covers laid for nearly a hundred.

After justice had been done to the dinner addresses were made by Governor Willis and the mayor of the city.

Following the official welcome came heart to heart talks on practical phases of association work. President F. T. Price of Columbus, E. T. Jones of Akron, F. E. Avery of Columbus, A. J. Peebles of Columbus, R. A. Wilson of Chicago and others participated.

Harry Single was elected temporary

chairman of the local and D. W. Rudisell temporary secretary. Further meetings will be held and the task of lining up the garagemen of the city will be carried on with a will. Committees were appointed to carry on the work, to draw up constitution and by-laws.

Work at Cleveland.

Ohio also reports the perfecting of a temporary organization at Cleveland, which has the nucleus of a strong local, affiliated with the state association. An active campaign is being conducted.

A Start at Minneapolis.

Recently R. A. Wilson conferred with the board of directors of the Retail Automobile Dealers' Association of Minneapolis. Ways and means of perfecting a state association were considered and also the idea and feasibility of affiliating with the National Automobile Trade Association.

The organization now is working with the state associations affiliated with the National on the gasoline question.

From the West.

J. W. Johnson, secretary-treasurer of the Washington Motor Trades Association of Seattle, writes: "We are on the road to form a tri-state coast organization to include Washington, Oregon and California. Later we will get in touch with the National Automobile Trade Association. Our attendance at meetings is between fifty and sixty. We have 100 members."

From the Golden Gate.

Supplementing the foregoing, Secretary A. D'Etzel of the Garage Owners' Protective Association of San Francisco writes:

"Our president has just returned from the north and is delighted with the prospects of state organization. He finds that both Washington and Oregon have state associations and it is their idea to co-operate with California for a coast association which would affiliate with the National."

Progress in Michigan.

Michigan is the good old standby state where things are going right. A full meeting of the board of the Garage Owners' Association of Michigan was held in March, the session lasting eight hours. Definite plans were perfected for carrying on the work.

The name of the organization was changed to "Michigan Automobile Trade Association," and the by-laws changed to conform to the new National movement and the work in hand.

The annual meeting will be held on the second Thursday of October, the place of meeting to be determined at the previous convention. Special meetings may be held at any time during the year.

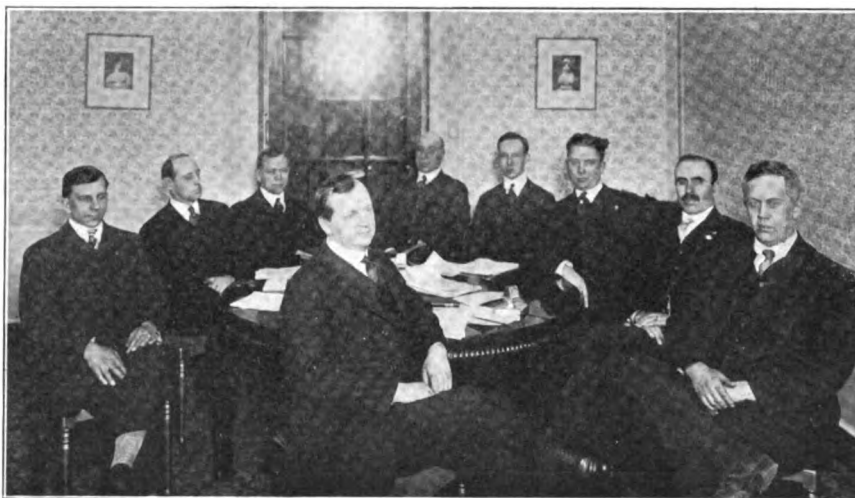
F. A. Bean, of Detroit, was elected to fill the vacancy caused by the resignation of H. M. Geueke, of Calumet. Mr. Geueke resigned because of the extreme difficulty in attending board meetings, due to complicated train schedules. He will continue an active factor in the work.

Detroit Changes Name.

A change also has been made in the name of the Detroit Association, which in the future will be called the Detroit Automobile Trade Association. The officers of this organization are:

President, J. J. Towers, 776 East Canfield avenue.

Vice-president, Frank Gremel, 2475



In front—C. F. Strong, Coldwater, Mich., Treasurer.

In rear, left to right—L. C. Rivers, Battle Creek, First Vice-President; F. A. Bean, Detroit, Director; L. C. Steers, Detroit, Secretary; L. F. Bertrau, Big Rapids, President; R. A. Wilson, Chicago, Secretary National Automobile Trade Association; F. L. Johnson, Adrian, Director; George Robbin, Port Huron, Director; C. W. England, Lapeer, Director.

West Grand boulevard.

Treasurer, R. L. Francis, 727 Waterman avenue.

Secretary, Clyde E. Swain, 2772 Woodward avenue.

Directors: F. A. Bean, William L. Reno, L. C. Steers.

AMALGAMATION PENDING AT COLUMBUS.

Columbus, Ohio, April 14.—A spirited meeting of garage owners and car dealers was held here this week. A joint meeting of the Columbus Auto Trade Association and the Columbus Garage Owners Association gave the members of the two organizations opportunity to size each other up. The outcome of the "sizing" was evidenced by the disappearance of considerable of the feeling of restraint that has kept these two elements of the trade apart in the past.

A committee of five was appointed by the Garage Owners' organization to confer with a like committee of the Auto

Trade Association for the purpose of devising ways and means of getting the automobile trade of Franklin County lined up for a forward advance. Another meeting will be held early next week.

The present plans call for an amalgamation of interests and the consolidation of the two organizations into one effective association which will hold membership in the Ohio Automobile Trade Association. The new organization probably will operate under the name of the Columbus Auto Trade Association, which is now incorporated.

A membership of 100 or more is predicted with great confidence and that will include all the garage men and dealers in Franklin County.

This is a part of the active campaign being conducted by A. J. Peebles, secretary of the Ohio Automobile Trade Association. The conference was held at the joint suggestion of Secretary Peebles and Secretary R. A. Wilson, of the National Automobile Trade Association.

successfully without the support of his fellow garagemen. The garageman is the best friend the garageman has on earth. If the garageman is doing things he should not do, make him a member of the Chicago Garage Owners' Association; he will be all right in the course of a year.

He stated there was more money invested in garages in the United States than in any other branch of the automobile industry, and that this tremendous investment had no protection because it was not organized.

Referring to the attempts to create rival associations he stated that one of them had placed the annual dues at \$2 a year, which included a subscription to a paper; that the organization held one annual meeting; that its affairs are controlled by three men who held office perpetually. Notwithstanding this fact the organizers have been able to secure a number of members in Illinois and adjoining states.

Going back to the work undertaken and being pushed by the National Automobile Trade Association, he said that the organization would save the garage owners of America at least \$9,000,000 a year.

R. A. Wilson, secretary of the National Automobile Trade Association, was called on and spoke briefly on interinsurance, and outlined the benefits to be derived by garagemen who will conduct their affairs in the proper way and clean up their premises. He said interinsurance was a means whereby policy holders could secure full benefits for the precautions taken.

The March meeting of the Chicago Garage Owners' Association was unusual in many respects. The dinner was tendered with the compliments of the members and their friends. At the close of business several very interesting talks were made and a vaudeville performance was staged, which entertained members and guests until a late hour.

TIRE REPAIR MANUAL.

A feature of Goodyear's Manual of Tire Repairing, just issued and now ready for distribution, is a system of cost accounting for this department of the business.

Every step of the work of repairing is fully described and accurately illustrated. The book has been mailed to a large list of tire repairmen and will be sent to any one free on request.

Copies may be secured from the general office, Akron, Ohio, or from any of the company's branch establishments.

Chicago Garage Owners Association Entertains

A rousing meeting of the Chicago Garage Owners' Association was held at the Lexington hotel, Chicago, March 15.

President Halbert presided and R. A. Wilson, secretary of the National Automobile Trade Association, served as secretary. The roll call showed 84 present.

Following the usual order of business, reports of standing committees were called for.

Mr. Wallace, chairman of the purchasing committee, said that three automobile concerns had been visited during the last month and that arrangements had been made to secure discounts on Overland, Buick and Hudson parts for all members in good standing.

Harry Salvat reported the application of the Philadelphia Storage Battery Company for membership.

Chairman McPherson of the legislative committee said that the lien law was the most important thing that was being considered just now. He said the work was not clear sailing, but that the committee had hopes of making substantial progress and to secure the co-operation of the interests which are now most seemingly opposed to a lien law for garagemen.

In discussing the local situation it was

brought out that a common complaint is that the garageman will give his business card to a customer who would buy at wholesale prices. It was stated that dealers and manufacturers object to a garageman giving discount to a consumer. This is the reason why some of them have withdrawn discounts to the garage trade, and for this reason many of the dealers refuse to accept a card from the garageman, but will accept a card showing membership in the Chicago Garage Owners' Association.

A resolution of the Board of Directors was introduced whereby the members of the Association become members of the Mutual Motor Sales Company. This resolution was approved. Mr. Mayers of the Mutual Motor Sales Company was requested to explain the method of conducting it affairs and did so somewhat in detail.

President Halbert called attention to the fact that the oil contract expired in April and said there would be a very sharp advance in price.

Robert Bland was called on for an address and electrified his auditors with the striking plea for co-operating efforts. He said that no man could operate a garage

(This is carried at the bottom of the letterhead of The Ohio Automobile Trade Association, of Columbus.)

CONVENTION-October 18-19, 1916, Hartman Hotel, Columbus, O.
1000 Members Present **Are You With Us?**

Affiliated with The National Automobile Trade Association.

Ethyl Alcohol from Wood

A Possible Combustion Engine Fuel

From Madison, Wis., comes the following story:

In New York automobile owners are paying from 27 to 30 cents a gallon for gasoline. In Madison a substitute is being produced at from 13 to 20 cents a gallon.

For the last three years the Forest Products Laboratory, Howard F. Weiss, director, has been conducting experiments in the production of grain alcohol, the best substitute for gasoline. A few days ago Mr. Weiss announced that the experiments have proved conclusively that grain alcohol will be the twentieth century competitor of gasoline. Under the improved process in operation at the laboratory satisfactory results have been obtained. Mr. Weiss is submitting technical details of his observations to the government and to two large industrial firms that plan building factories for the production of grain alcohol on this process.

Today the market price of grain alcohol is 55 cents a gallon. With the new process the laboratory has estimated production at 13 to 20 cents a gallon. Even if alcohol is sold at the current market price of gasoline, the margin of profit is considerable on a gallon.

Grain alcohol can be obtained from any kind of wood, but pine or spruce is the best. Western larch is also exceptionally good, according to Mr. Weiss. From this particular wood, which grows abundantly in Montana and Idaho, the laboratory has obtained thirty-five gallons of alcohol from one ton of larch sawdust. In another instance from one ton of sawdust twenty-five gallons of 95 percent alcohol were produced.

The lumber cut annually in the United States amounts to about 40,000,000,000 feet. Using only the sawmill waste, which is consumed in burners or lost entirely, Mr. Weiss estimates that 500,000,000 gallons of grain alcohol can be manufactured. He said:

There is no doubt in my mind but that the production of alcohol will develop into a big industry. The advantages in favor of alcohol for power purposes are manifold. When you take petroleum, which makes gasoline and oils, from the ground it is lost forever. Trees multiply. If Henry Ford makes good on his promise to produce farm tractors at low cost, the present consumption of gasoline will be accelerated to an astonishing degree. I believe all the oil wells in this country have been exploited. Mexican oil wells are not ideal for producing other combustible liquids than lubricating oils.

You cannot run an automobile so far on a gallon of alcohol as you can on gasoline with the present make of engine, but with alteration of the engines so they will be stronger to stand a higher explosive compression, the thermal energy of alcohol equals that of gasoline. Alcohol is safer to handle, forms no carbon on the spark plugs, has no smoke and is not offensive.

The process used at the laboratory as explained by the director is an improvement on the Danish method discovered in 1898. It is substantially this:

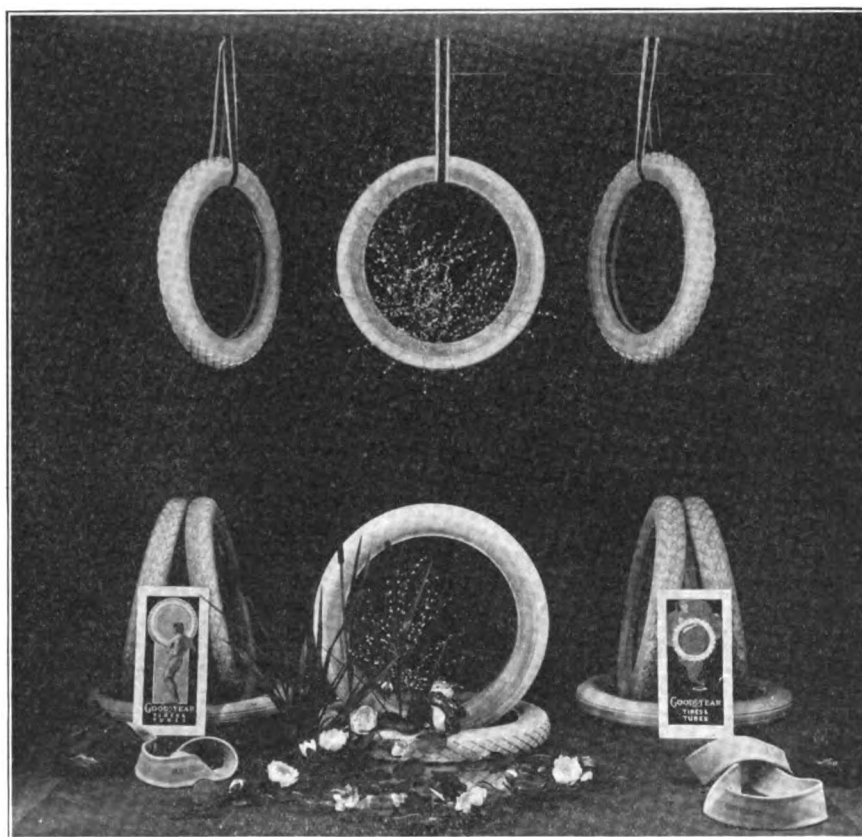
Mill waste is run through hog machines that chop the wood into fine sawdust. The sawdust is then dumped into a digester, an iron cylinder to which is admitted a weak solution of sulphuric acid. The cylinders are then filled with live steam at a pressure of 120 pounds for twenty minutes. The action of the steam and acid breaks up the cellulose in the wood and converts it into sugars. The sugars are worked out of the sawdust and the result is a sugar water extract.

This water extract is treated with yeast and the yield is alcohol. The product is then put into copper stills and refined to almost 100 percent purity.

At present there is only one ethyl alcohol manufacturing plant in the country that is using wood. This is located at Georgetown, S. C. Heretofore the growth of the industry has been retarded by wildcat schemes, but especially by lack of definite knowledge regarding the technical process.

Since Congress has been considering an investigation into the high price of gasoline, and since a resolution is now before the House of Representatives to formulate the necessary plan by which the government can manufacture gasoline, it is probable that the federal authorities will take cognizance of this work successfully carried out by the laboratory. The Rittman process, by which it is said gasoline can be produced cheaper, relies on natural production of crude oils and eventually these will be exhausted. Alcohol, on the other hand, can be manufactured so long as there is wood.

A PRE-EASTER WINDOW DISPLAY OF CORD TIRES.



This display should give the garageman ideas on effective use of the window. It appeared in seventy-one branch establishments of the Goodyear Tire & Rubber Company, Akron, Ohio, scattered throughout the United States.

Garaging and Its Evils, From a New Viewpoint

(From a new viewpoint.)

[A stirring talk by Robert Bland, President of the National Retail Automobile Trade Association, before the Garage Owners' Association of Michigan, Convention at Hotel Statler, January 20.]

"The evil that men do lives after them," wrote Shakespeare. He might have added: "And one day will appear to afflict the garage owner and car dealer.

It is a consolation to know that we, the garage owner and dealer have organized to uncover the "good that oft was interred with their bones."

Garage evils! Now, fellows, what are they? How do they affect and afflict us? How are we to get rid of them? These questions are answered by the fact that we have at our command an instrument in our associations that will eliminate the most of the evils to which the business has fallen heir. The instrument is fully potent—if we use it, but in that event only. We must also see to it that we do not violate all Scripture ethics for the government of business transactions, otherwise we degrade the business and make it a stench in the nostrils of the public.

In an age when human life is cheap in half the world and when it seems to be the rule for business men and tradesmen, small and large, to prey upon one another and upon the public, it may seem strange to urge that Christian principles should govern men in trade; but it is absolutely certain that the best success in business depends upon the strict observance of the moral laws of God, and that every man that violates those laws will surely be punished—will sooner or later lose out in business as well as in character, peace of mind and happiness.

The all-comprehensive rule for human conduct is the Golden Rule: "All things whatsoever ye would that men should do unto you, do you even so to them; for this is the law and the Prophets" (Matt. vii, 12): and "Thou shalt love thy neighbor as thyself" (Matt. xxii, 39, and Leviticus xix, 19).

The common version of the Golden Rule as applied in business is: Do others first or they will do you, and love your neighbor as long as you can fleece him.

Christ's measure of love to neighbors, "As thyself" and as "Ye would" is the doctrine of the fair deal. Not that you should love your neighbor more than you should love yourself, or do for him in trade more than you would have him do for you, but *as much*. Consider his interest as well as your own. Take not all the trade will bear, or

all you can inveigle or cheat him into giving you, but only what is fair between you and your customer. As much as possible standardize your business, give all one price and fair prices to all. That will protect the honest business man from price hagglers who never consider his interests—his right to sufficient profit to cover his legitimate overhead, and something to lay by for a rainy day.

A Variegated Bunch.

We are a motley bunch, we garage men and dealers. We include every type of man to be found in the gallery of civilization. In our ranks you will find the modern business man who has made a big investment in building, equipment and merchandise. His enterprise is backed by adequate capital, by knowledge of how to conduct a business, but notwithstanding these safeguards, you will find this business is affected by the same demoralizing factors that influence your business and my business.

In our ranks you will find the mechanic who, whatever his knowledge of a motor car or electric, knows nothing about business, and consequently does not know how to make prices, but succeeds in making your prices and mine. Absurd, isn't it, but true, just the same.

Take the man with the investment and the knowledge and you could not induce him to subscribe to an unbusiness-like theory such, for example, as selling service and merchandise for less than it cost to deliver, but in practice he does exactly as the remainder of us do for the good and sufficient reason that he is powerless to do otherwise.

Where and How the Individual Counts.

In the great struggle of humanity—in war, industry or in social life—the individual does not count. But the fabric of civilization takes its color, derives its strength and secures its value from the threads that are woven into it, and these threads are our lives, and so, fellows, I wish to say again that the day of individualism has passed, but never before was the individual of such importance.

Recently I read a story based on the war in Europe in which the leading man explained his refusal to join the army on the ground that civilization, not he personally, was responsible for the war. The girl in this case replied that as all were responsible for the conditions producing the struggle, all should take an equal share of the responsibility and shoulder a fair share of the load.

Tear Out the False, Build in the True.

That is the situation in the garage

field. We are in a measure responsible, and all should share a part of the burden. If we eliminate the conditions which now surround us, we, you, and I, and the other fellow, will each do our part in tearing out the false and building in the true.

That may sound like a platitude. It isn't. It is the concrete essence of all we are trying to do.

To me the item of first importance among the evils afflicting the garage man and dealer is *ignorance*. There are many things about this business of ours that we do not know. There are more things about business principles of which we are ignorant. And to this ignorance on our part is the profound ignorance on the part of the public of what the garage man and dealer is and what he should and does do.

There is no excuse for ignorance in this country; ignorance on the part of a man engaged in business is a sure indication that that man is lazy or feeble-minded. There are far too many ways of acquiring knowledge to justify any man in remaining ignorant, and at the same time to remain in business.

Ignorance of any phase or detail in our own business is a crime. It carries with it a penalty that is automatically inflicted. That penalty is *failure*, absolute commercial ruin, fellows, or that small measure of success that makes work a burden and business a bore.

Our Real Purpose in Life.

Our real purpose in life is to do our work, to be happy, to progress and to help the less fortunate up to the level we occupy, just as those above us should reach down to help us to their level. We cannot accomplish this purpose if we remain ignorant.

We are so accustomed to the manifold benefits of this great free country of ours that we are inclined to hold them in light esteem. We inherited this country, and we prove ourselves worthy of the heritage only as we improve the property left to us.

What We Owe Our Business.

Please follow me in that statement: this country, our state, our particular locality, our business does not owe us anything. We owe every one of them a great deal and the big question is: "How are we going to pay?" unless we make a profit, a financial and successful profit, with which to pay.

You are all familiar with the type of garage owner who is on duty long enough each day to pocket the proceeds

of the business, and who requires the remainder of the twenty-four hours to put the money back into circulation. He is one of the evils with which we are forced to contend.

He is entirely capable of eliminating himself from the business, and will do the job quickly and efficiently. While he is with us and of us, we suffer for what he does, and particularly for the things he doesn't do. He casts discredit on us. It is time for him to get into the business game and to cut out his joy-riding.

We Make Our Own Troubles.

The longer I live the more I am convinced that most of our troubles originate within our own ranks. People don't make trouble for us. We make it ourselves, then try to give others the blame.

We are suffering all the penalties the crime of being young imposes. Youth and irresponsibility are closely associated in the public mind. Garage and irresponsibility—or worse things—have been identified.

CLASSIFIED ADVERTISEMENTS.

STARTING AND LIGHTING EQUIPMENT.

Magnetos, Coils, Lighting Generators. Starting Motors, Magnetizers. We manufacture, sell and repair. Prices right and service the best.

H. B. WEBER & CO.,
1336 Michigan Avenue, Chicago, Ill.

PROTECT YOUR IDEAS.

Many of the best selling accessories and supplies were invented by garage and repair men. Protect the ideas you develop. A patent, a trade-mark or a copyright may mean the difference between affluence and poverty in later years.

CHARLES TURNER BROWN,
127 South Dearborn Street, Chicago, Ill.

REPAIRS AND REBUILDING.

If a job comes in you cannot handle, if you need aid at any time send it to me. No job too small or too large to receive prompt attention. Try me once and you will become a permanent customer.

CHARLES BALLARD AUTO REPAIR SHOP,
5413 Cottage Grove Avenue (In rear)
Chicago, Ill.

CHICAGO GARAGE FOR SALE.

An established business, including high class garage and motor livery is now offered for the first time. The business is located in a fashionable south side Chicago district.

Garage has capacity of 60 cars and is doing a splendid business. Appointments are of the very best. The closest investigation is invited.

The business must be sold for the owner is leaving the city.

Price for immediate sale, \$10,000.
Address W. G. 1, Care Garage Efficiency.

Year by year we are emancipating ourselves from the handicap of youth, but is age giving us the degree of workable wisdom it should give? Some of us are still frisky. Some of us want to continue to play at being business men.

Why should not we garage men get into the game of business and play it according to the rules laid down? That is our right. If we do not exercise that right, we should not bewail the fact that business men do not care to play with us or to overlook our disregard for the rules. You may answer that we do not get a square deal. True, absolutely true, but who is responsible?

The Game of Business.

If we, as business men, are ignorant of the rules of the game, or if we ignore them, what right of protest have we when others ignore them in their dealing with us?

Let's get this beam out of our own eye before talking about the mote in the eye of the other fellow. When we are given short discounts, when the manufacturer or the jobber ignores us and sells direct to the consumer, when we suffer loss of patronage because the manufacturer says "Get your car out of that garage, or forfeit your guarantee," when the public is advised not to place any trust in garages or garage men, when the daily press storms and raves, and ridicules us, when these and other things too numerous to mention happen, we do not feel like trying to establish friendly relations with those with whom we deal.

Now, the fact that the men who make some of the cars and the supplies and accessories we handle are small and mean does not compel us to get down to their level. True, they should endeavor to help us, not try to pull us down, but their failure does not excuse us.

Doing Business with Just Men.

They are men like ourselves. Some of them are broad-minded, some of them have a yellow streak—possibly some garage men have a yellow streak—and we know lots of them are big fellows. We humans average up pretty well in that respect.

You can take the good points or the bad points of any lot of men and find justification for any course you may elect

to adopt toward them. The way to real betterment, the road to reciprocity that means something and will get us somewhere, lies along the course I have endeavored to chart. We must pay for what we get. The lowest price and the best terms are made to those who come forward and pay willingly and as a matter of course. If we hang back, or neglect to pay, the price is taken out of our hide in some way just the same.

We garage men should pay our way willingly. We should pay with money, time and thought. We must cancel our obligation in this way if we derive a profit from the investment, and pay we must for all we get out of our lives and our business.

Physical Elements.

This time I have not elected to talk to you about the physical things of the garage business. We all realize the need of an adequate accounting system, we know we are paying higher insurance rates than we should pay, we know the tires, battery, accessories and supplies that supply men are selling direct to consumers; we know there is evil upon evil in the business, and we know also they will stay there unless we work to rid ourselves of them, but the most serious evil is the evil of ignorance. A close second is the evil of self-satisfaction, then comes the evil of trying to hog the business and of losing money by trying to keep the other fellow from making money.

Stand Ready to Do the Square Thing.

Our first and greatest work, therefore, is to put ourselves in the proper attitude and our business in order. If we stand ready to do the square thing, and to see that all with whom we do business reciprocate by doing what is right, we will have accomplished the first and begun to put to use the "Good that was interred with the bones of our predecessors."

The Automobile Press.

The automobile industry has a wonderful press. Possibly we are over-supplied. Live questions affecting us, new inventions, new thoughts and new methods are coming out right along. Every one of us should take two or more good papers. I can assure you, however, that you will not get one cent of benefit unless you read the papers you take and employ the information you secure.

Every one of us should take GARAGE EFFICIENCY and Motor World. That goes without saying, of course, but are we all reading them? (I am not advising you to do anything I am not doing or trying to do myself.) GARAGE EFFICIENCY and Motor World are your papers. Read them. Then do something more. Write the editor a letter roasting the tar out of him, for what he has done and for

Learn the Automobile Business

We teach you construction, repairing and driving in 6 to 8 weeks. Special instruction in Acetylene Welding, Knight Engines, Vulcanizing, Electric Starters, Automobile Salesmanship. Greer graduates always in demand. Earn \$150 per month and up.

Courses \$15, \$35, \$50, \$65 and \$150

Booklet "How to Succeed in the Automobile Business"—FREE. Write today.

GREER COLLEGE OF MOTORING

1519 S. Wabash Ave. Chicago, Ill.

what he has not done. Write him a letter giving him your ideas and your experiences.

I am not making this suggestion for the good of GARAGE EFFICIENCY or Motor World, but for your good. If you will keep in touch with all that is going on, if you will place yourself in a responsive frame of mind, we all will get along much faster. While these papers are championing our interests exclusively, we are sitting back and letting some one else do the digging, unable to appreciate how much good we can secure by working up a healthy sweat over some of the questions before us.

A GLOSSARY OF AUTO-MOBILE TERMS.

Joy ride—Honeymoon trip.

Too much play at the wheel—Dead broke at Monte Carlo.

Filling the cooler—"Running in" the drunks.

Shock absorber—Clergyman in Paris.

Buying gas—Paying your lawyer.

A foot brake—Stepping on the debutante's train.

Putting up the top—Pawning your silk hat.

A blow-out—Suffragette released from jail.

Wind shield—A gag for senators.

Feed pipe—A free lunch.

Cutting out the muffler—Starting a home-made Christmas present for hubby.

The cooler fan—The rooter who bought a grand-stand seat.

Left-hand drive—When his sweetheart sits at his right in the buggy.

Universal clutch—The love of mammon.

Crank up—Anarchist hanged.

Testing the sparker—Standing under the mistletoe.

Trouble with the ignition—Bridget drops a lighted match in the kerosene.

Safety tread—Entering home at 2 a. m. in stocking feet.—Judge.

AD GARAGE EFFICIENCY— STATEMENT OF THE OWNERSHIP, MAN- AGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912.

Of Garage Efficiency published monthly at Chicago, Illinois, for April 1916.

State of Illinois, County of Cook, ss. Before me, a Notary Public, in and for the State and county aforesaid, personally appeared Wesley T. Christine, who, having been duly sworn according to law, deposes and says that he is the editor and manager of the Garage Efficiency, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor and business managers are:

Name of publisher, The Garage Press, a corporation, post office address Chicago, Ill.

Name of Editor, Wesley T. Christine, post office address Chicago, Ill.

Managing editor, none.

Business Manager, Wesley T. Christine, post office, Chicago, Ill.

2. That the owners are: (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent or more of the total amount of stock) The Garage Press, a corporation of Illinois. Wesley T. Christine, Chicago, Ill. Grace S. Christine, Glen Ellyn, Ill.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state) Frank Roderus, Glen Ellyn, Ill.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is (This information is required from daily publications only.)

WESLEY T. CHRISTINE.

Sworn to and subscribed before me this 31st day of March, 1916.

(SEAL.)

MARION A. BOTSFORD.

(My commission expires Dec. 8, 1918.)

Get Ready NOW

Write or Dealers' Prices on Shanhouse Motorsuits.



You can sell one to the owner or driver of every car that comes to your garage.

Sell them to the men that work in your garage or other mechanics.

An assorted stock calls for a small investment. Make arrangements for yours now—prepare for the coming demand.

There is not a motorist in the country who can afford not to carry a Shanhouse one-piece Motorsuit in his car.

We are selling to your customers. Will divert the trade to you if you will stock Shanhouse.

You can offer Shanhouse Motorsuits to your customers on the "Money-back-if-not-satisfied" plan.

Special inducements to all who put in stocks during the Winter months. Write TODAY.

WM. SHANHOUSE SONS

ROCKFORD, ILL.

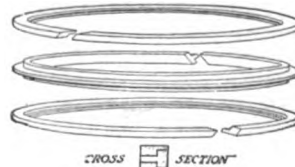
INSURE YOUR ENGINE'S LIFE

with Trump Multiple Piston Rings

They make old engines new and KEEP NEW MOTORS NEW. Never lose compression.

Regular
Sizes
\$1
Each.

Any size to
order.



Write
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Booklet.

For Automobiles, Tractors, and every kind of gas engine.

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5 Union St., Crown Point, Ind.



AUDELS

Automobile Guide

A complete treatise on the automobile for owners, operators and repairmen. Answers practically any question relative to the care, repair and operation of a car. Over 500 pages, fully illustrated, including a chapter on Self-Starters and Lighting Systems. Flexible Leather Binding—

Price.....\$1.50

Address

Book Dept., Garage Efficiency
608 S. Dearborn Street, CHICAGO

News and Developments Among Prominent Manufacturers and Dealers

NINETEEN YEARS AN ADVERTISING MANAGER.

AKRON, O., April 10.—It's an ill wind, indeed, that hasn't a silver lining, as Josh Billings would say. In this case the silver lining played a double header. Two score years ago a young and promising Easterner started for the Northwest, but tarried at Akron, Ohio.

So enamored did he become with the potential seat of rubber culture that he besought himself a newspaper job then and there. It being necessary to interview a brother of no less than F. Pixley, the now eminent father of drama and musical comedy, in order to officially affix himself in the treasurer's good graces, this young "Go-Wester" journeyed to the aforesaid's home. Mr. Pixley was ill.

Before the interview had been concluded an Akron doctor, essaying the role of heavy villian, announced that Mr. Pixley had the smallpox and that the house was quarantined. Needless to state the young job aspirant remained as a guest. And so in the course of time he joined the staff of the newspaper and was also joined in

wedlock to Mr. Pixley's sister—hence the aforementioned double lining.

This is the story of how E. C. Tibbits, who on April 7 concluded his nine-

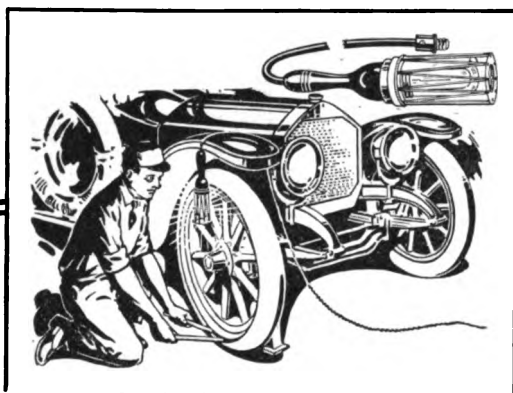


E. C. TIBBITS
Advertising Manager, The B. F. Goodrich Company, Akron, Ohio.

teenth year as the one and only advertising manager which The B. F. Goodrich Company has ever had, reached Akron. He reached the Goodrich factory before they'd had a chance to hang the receiver back on the hook after calling up his paper and inquiring: "Have you a bright young man whom you could recommend to write advertisements?"

The growth of The B. F. Goodrich Company, which is the largest rubber factory in the world and produces over 20,000 different articles of rubber, including auto, motorcycle, bicycle, truck and carriage tires, hose, belting, packing, molded goods, raincoats, boots and shoes, water bottles, and, in fact, "everything in rubber," is largely attributed to its progressive advertising policies. In fair weather or foul, Goodrich advertising has stood forth as prominently and continuously as Gibraltar.

The Goodrich Company have always been strong believers in advertising because they have seen their business multiply and prosper under the sun and rain of publicity. In no other way could they have told so many millions of people



Trouble with Your Automobile

—whether on the dark road or in the garage, requires good, bright light directed on the affected part.

The Automobile Electric Trouble Lamp

may be attached to the car battery, or to any convenient lighting socket. The long cord enables one to reach any part of the car. The lamp is protected by a wire guard. All danger from flame is eliminated.

Commonwealth Edison Company
Edison Building 72 West Adams Street
724

Empire Red Tires

Perhaps you have heard some of the talk about EMPIRE RED RUBBER TIRES that is going the rounds of motor circles; and perhaps you are wondering how the color has anything to do with the difference in miles and wear and tear. *Listen!* Just about fifty years ago down Hampton Roads way, the north and the south pulled off a little naval side show between the Monitor and the Merrimac, the first iron-clad ships of war. The naval folks laughed at both of them—and now look at the world's navies.

The RED in Empire Red Rubber Tires is the biggest step ahead in the preparation of rubber for tires that the tire industry has seen in recent years.

The RED in Empire Red Rubber Tires stands for NEW rubber—new live rubber, with all the bounce left in. It means all new rubber, no old shoes or junk.

The RED is the result of a new process of vulcanization that keeps Empire Red Rubber Tires always young. They will not deteriorate standing still.

EMPIRE RED RUBBER TIRES deliver the maximum number of miles in roadability. They have made records that are astonishing and these records occur with persistent regularity.

Use Empire Red Automobile Tires—the satisfactory tires. Sell Empire Red Automobile Tires—the satisfactory tires. They will give you satisfaction.

Empire Rubber & Tire Co.

1627 S. Michigan Ave., CHICAGO

Factories: Trenton, New Jersey

about the goodness of Goodrich goods, in so short a time, or so economically. Their advertising has made people want rubber goods made by Goodrich, and what the public wants it gets, year after year. Today their great factories are at work night and day. Each year they invest more and more money in advertising and each year are forced to build and build to care for increasing business.

ENGINEERING FORCE INCREASED.

In line with the remarkable development which has taken place in the organization of the American Bureau of Engineering, the addition of Prof. Morton of Armour Institute to the engineering staff should be of interest to the trade.

The American Bureau of Engineering is manufacturing and marketing perhaps the most remarkable device of its kind ever offered to the garage and repair man of this country—Ambu Electric Trouble Shooter—for detecting and locating trouble in the electric starting and lighting systems of gasoline automobiles.

Professor Morton's connection with the concern adds a strong force to the service which the company is prepared to offer not only to the garage and repair men of this country, but to automobile manufacturers installing electric starting and lighting systems in their cars as well as

the manufacturers of the electric starting and lighting systems.

MEETING EDISON SALESMEN.

Salesmen and branch office managers of the Edison Storage Battery Company gathered at the Main Office, Orange, N. J., March 13-17, for the annual sales meeting. H. G. Thompson, vice president and general sales manager, presided. The list of those in attendance includes John Kelly, New York; W. F. Bauer, L. F. Meissner, H. J. Butler, Chicago; Bertram Smith, G. F. Simon, Detroit; E. M. Cutting, San Francisco; George W. Holden, Boston; C. H. Clare, New York; Geo. Drake Smith, E. J. Ross, Jr., H. H. Smith, F. V. McGinness, H. M. Roberts, H. W. Stortz, John Pulster, J. B. Renwick, Jr., R. C. Veale, A. Mudd, Geo. J. Glaser, Paul Sutcliffe, Orange, N. J.

The reports of the various salesmen showed a healthy condition throughout the industry and marked important developments made by the Edison storage battery, particularly in the railway train lighting; railway signaling; electric commercial vehicles; electric industrial trucks; electric baggage trucks; electric safety mine lamps; storage battery gathering locomotives, etc.

The success of the Hartford Electric Light & Power Company, using the Edison storage battery service system and

the fact that the Hartford Electric Light & Power Company was able to charge lower rates than charged by any other company, was pointed to as most valuable information which should be more clearly brought to the attention of other central stations interested in selling the off-peak load.

The convention concluded with a group photo and a dinner and theater party in New York.

SEMI-CENTENNIAL ANNIVERSARY.

Fittingly to celebrate its fiftieth anniversary a large and thoroughly modern office building and warehouse has been built adjoining the works of the Merchant & Evans Company, Washington avenue and Twenty-first street, Philadelphia.

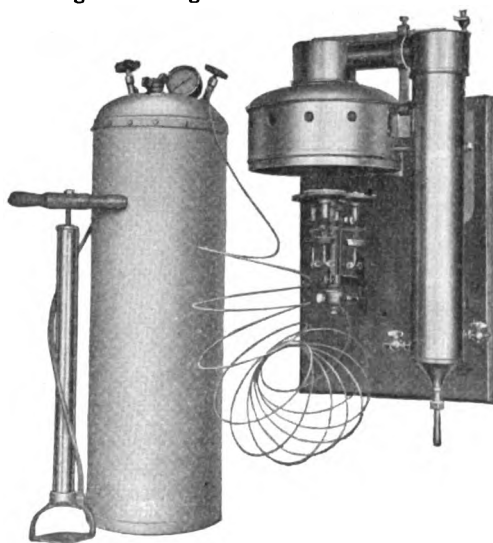
This business was established in 1866 and limited at the start to dealing in brass, bronze and copper products, which were imported from Europe and distributed in this country.

Subsequently the company engaged in the manufacture of tin to maintain the quality of product formerly imported from England.

The business was established by Clark Merchant. Later it was known as Merchant & Company, Inc., with Clark Merchant as president. Upon the death of Mr. Merchant the style of the company

GIVE YOUR STORAGE BATTERIES A CHANCE

Increase their life and capacity by using only distilled water when flushing or washing.



Gasoline or Kerosene operated type.

Several hundred garages are pleasing their customers by using distilled water in their batteries.

It is a splendid Talking Point in going after new business.

Your profit from the sale of distilled water will quickly pay for the Still.

CAPACITIES—One-half to 15 gallons per hour.

Operated with steam, gas, gasoline or kerosene.

THE IMPROVED "ROCHLITZ" AUTOMATIC WATER STILL is used and recommended by all the leading storage battery manufacturers.

MANUFACTURED BY

Manhattan Building W. M. LALOR Chicago, Ill., U. S. A.



Edison
Alkaline
Lighting
and
Ignition
Batteries

Batteries and Supplies
carried in Stock at our

Service Station

Every Garage Owner should have information about the Edison Battery on his desk.

Write us.

EDISON STORAGE BATTERY CO.
Orange, N. J.

Chicago Address: 2025 Michigan Avenue

was changed to Merchant & Evans Company.

Long before the European war increased the demand for motor trucks this concern was producing automobile clutches, alignment joints, rear axles, jack-shaft transmissions, grease cups, metal tire cases and eventually completed gasoline motor trucks and tractor trucks.

The company now has plants in Philadelphia, Wheeling and Chicago and offices and warehouses in New York, Baltimore, Cleveland and Kansas City, in addition to the offices at the several points where its plants are located.

This is an evidence of the growth of American business which is not without significance. It is attributed to the fact that

when the English manufacturers of "Gilbertson's Old Method" tin reduced the weight of the coating, rather than offer their customers an inferior product the members of this institution erected a plant and turned out "Merchant's Old Method," superior to the brand formerly sold.

The ability to go straight and think clearly will carry any business enterprise a long way forward.

SERVICE INCREASES CAPITAL.

At a recent meeting the stockholders of the Service Motor Truck Company voted to increase the capital stock of the company from \$250,000 to \$450,000. The new issue of stock has practically all been

subscribed by the present stockholders.

This increase in capital stock was made necessary by the large increase in the sale of service trucks. Two large additions to the factory have just been completed which practically double the capacity of the plant, but the directors of the company anticipate that this increase will not be large enough to take care of the business and are planning the erection of a large new plant in the near future.

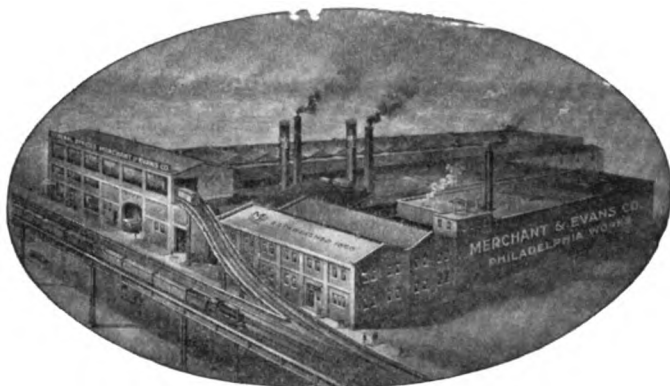
SELLING HINTS.

POUGHKEEPSIE, N. Y., March 27.—There are two points on how to make the garage man a better merchant, which we believe frequently are not given sufficient attention.

First, we believe it is to the best interest to the garage to employ only first-class, reliable mechanics, in order to warrant resident motorists of his section in sending him after continued repair business. It frequently happens that many garages have indifferent workmen, more or less irresponsible, who cannot be entirely depended upon for careful and thorough work.

Second, during touring season the garage should be so equipped that motorists who stop for supplies should have immediate and courteous attention, for usually they are quite willing to pay top-notch prices if given first-class service.

LANE BROTHERS COMPANY.



The Plant of the Merchant & Evans Company, Philadelphia, Pa.

American Gasoline Filling Outfits



Safe — Quick — Accurate — Economical
American Double-acting, Continuous flow gallon measuring Pump delivers gasoline at the rate of 14 gallons per minute, which is as fast as most "Five Gallon" Pumps and costs much less. Accurate Measurement. ACCESSIBLE Valves.

Fully equipped with Filter, Meter, Hose Draining Valve. With or without Electric Light Fixture.

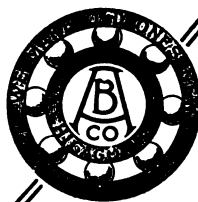
Storage Tanks, any capacity desired.

Portable Wheel Tanks
With Double-Acting Pump
The Best Made

All kinds of Storage Outfits for Gasoline and Oils, Paints, Varnishes, etc., for Public or Private Garages, Stores, Factories, Railroads, etc.

Write for Bulletin, giving complete information, prices, etc.

The American Oil Pump & Tank Co.
CINCINNATI, OHIO



BALL BEARINGS REGROUND

Mr. Car Owner

Do not throw away your worn bearings have them reground at a small cost. Guaranteed equal to new.

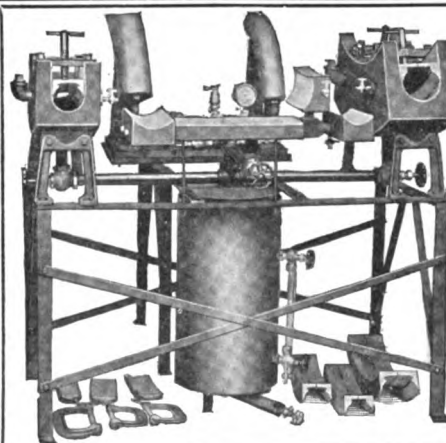
Mr. Garage Man and Dealer

Favor your customers by keeping their repairs bills as low as possible

Write for our Catalogue "F"

AHLBERG BEARING COMPANY

2636 Michigan Avenue Chicago, Ill.
New York Minneapolis Detroit Los Angeles St. Louis Boston
Cleveland



Garagemen

Read What Others Say About
Vanderpool
Vulcanizers

Pleased with Vulcanizer got from you.—O. W. Jordan, Beeville, Tex.

Vulcanizer is working fine.—Earl Gray, Saskatchewan, Can.

The Vulcanizer does very nice work. Am well pleased with it.—J. F. Marino, Winkelman, Ariz.

Catalogue Sent On Request.

VANDERPOOL COMPANY
Springfield, Ohio

Some of the New Products and Devices Now Offered Garagemen

Save Gasoline.

A number of tests have been made with the Sylphon Thermostatic valve, designed to control the temperature of cooling media on combustion engines, to show the relative amounts of gasoline required to operate a motor with and without this device.

The Sylphon Thermostat is produced by the Fulton Company, of Knoxville, Tenn. The report of the results of its use were prepared by Prof. David L. Gallup, professor of gas engineering of the Worcester Polytechnic Institute, Worcester, Mass.

The regulator now is being used as a part of the standard equipment of Cadillac and Packard cars. It is understood that manufacturers of other high class cars will install the regulator on their 1917 models.

The regulator consists of a Sylphon bellows containing a liquid which, when heated, gives off a vapor like steam and has a strong expansive force. This liquid is sensitive to a marked degree, never evaporates or changes form and never has to be renewed. The control is caused

by the contraction and expansion of this bellows and the communication of the force, through mechanical means, which in the case of application to an automobile engine consists of a valve which operates a by-pass in the water circulating system.

The results of the tests, made with a 1916 six-cylinder car with standard equipment over ordinary streets, are shown by the curved chart system.

A run first was made with the car without the regulator. At a speed of fifteen miles per hour the car made 14½ miles with a gallon of gasoline. At a speed of 38 miles per hour a record of a little over eleven miles to the gallon was established.

Equipped with the regulator the car made 16½ miles to the gallon at a speed of fifteen miles, twelve miles to the gallon at a speed of thirty-eight miles.

This shows a saving in gasoline of about 15 per cent at fifteen miles and about 10 per cent at thirty-eight miles. This record was made with the thermostat set at 160° F.

Setting the thermostat at 180° F. gave

a little over nineteen miles per gallon at fifteen miles per hour. At thirty-eight miles per hour the record shows a mileage of a little over fifteen per gallon of gasoline.

It is not thought that the high outlet temperature of 180° F. is desirable, except in extreme cases. There is a tendency of the water to escape in the form of vapor, and also for the engine to knock at full throttle and low speeds.

The Sylphon Thermostat may be applied to any automobile or any combustion engine. Complete particulars respecting the uses and values of this gasoline saving device may be secured from the manufacturer.

Red Tires.

"I am partial to any color, so long as it's red," said the Man at the Garage.

"Buy an Empire Red rubber tire and wear it down to the last gasp. If, when it is thoroughly done for, you think it owes you a single cent or another revolution, take it back where you got it and we will see that you are satisfied. Do

EXPERT REPAIRING ALL MAKES

Magnetos Coils
Generators
Starting Motors

Quick
Service

CHICAGO MAGNETO EXCHANGE

Magnetos
Bought and
Sold, Remagnetized
Ignition and Lighting
Systems Rewired.

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CHICAGO

Best by Test Always Wear a Smile



**Non-Carbon
Auto-Oils**

Light
Medium
Heavy

Make your cars run smooth
and easy

A Pennsylvania Product

Give us a one barrel trial order
Special discount to Garage Men
and dealers

If in need of L. O. Soap, write us
for price. We have it.

The S. A. Schwarz Oil Co.

Cleveland Ohio Columbus
Headquarters Cleveland, O.
Agents Wanted. Write for our proposition.

G & J

NOBBY TREAD
CHAIN TREAD
PLAIN TREAD

THEY'RE GOOD TIRES

THE OHIO RUBBER CO., Distributors
DETROIT CLEVELAND CINCINNATI

Dealers Service Station ..FOR TIRE REPAIRS..

**GUARANTEED WORK
PROMPT SERVICE
RIGHT PRICES.**

**SPECIAL ATTENTION TO
GARAGE ORDERS**

TRIPLE TREAD MFG. CO.

1545 Michigan Avenue, Chicago
Phone Calumet 2456

you know of another tire at any price that is sold as fairly?"

That statement appears in a folder recently issued by the Empire Rubber & Tire Company. It is of sufficient importance to justify reproduction here. The "entirely red" tire is an exclusive Empire product. If any dealer desires to find out what the red means possibly it will be well to write the company or apply to the nearest representative.

Keeping Up with the Demand.

On March 4 the entire stock and good will of the Superior Auto Parts Company, Indianapolis, Ind., was taken over by the Modern Electric & Machine Company, 936 Fort Wayne avenue, Indianapolis, Ind.

This change was necessitated by the increase in the demand for R. & M. Con-form piston rings, necessitating closer co-operation between the manufacturing and the sales departments. The Modern Electric & Machine Company, which has produced the rings, has added the R. & M. aluminum piston and has enlarged its plant to meet the remarkable growth in the demand for its products.

The combination of a light-weight piston and a mechanically right piston ring has pushed sales ahead at a very rapid rate, due in part to the car owner's desire for the greatest mileage from the gasoline he uses.



Officers of the Modern Electric & Machinery Company, Indianapolis, Ind.

R. & M. are Messrs. Ransdall and Meyer who developed and patented the ring. It's a three-part ring, consisting of a V-shaped bull ring and two conform rings of corresponding angles so as to ride on the bull ring. This construction gives the ring a firm and uniform contact all around the cylinder wall and insures high compression.

The company, of which T. A. Meyer is president and general manager, A. L. Knue, secretary and treasurer, and H. W. Ransdall, vice-president and experimental engineer, is planning an aggressive sales campaign and also expects to establish branches throughout the country.

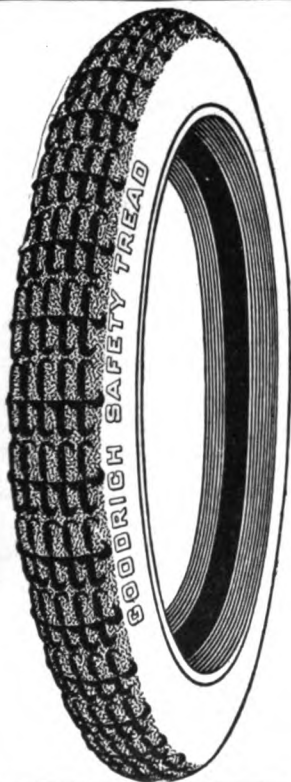
"The Final Proof."

That is a caption of a booklet put out by the Hyatt Roller Bearing Company, of Detroit. It tells the story of a trip equal to ten times around the world made by a Hyatt Roller Bearing without replacement or adjustment. Any one interested in bearings will be interested in this book.

A Spark Plug Detector.

Did you know that a cylinder firing radiates heat through its spark plug while a cylinder missing radiates cold through its spark plug?

That being a fact a device has been perfected by the Carter Spark Plug Detector



NOTICE

"No concern in America made, or sold, during its latest fiscal year, nearly so many Motor-Car Tires as did The B. F. Goodrich Co.

"Our published Challenge, still unanswered, proves this."

All black-tread Tires are NOT made—— ——of "BAREFOOT" Rubber

THIS is to tell the People, that Goodrich "BAREFOOT-RUBBER" Value lies not in its COLOR but in its composition.

It lies in the especially devised Texture, Flexibility, Cling-quality, Stretch, Lightness and Resilience of that "Barefoot Rubber" which, through years of Research, WE developed to match the marvellous Flexibility, Resilience and Power-conservation of our two-layer Cord "Sivertown" Tires.

Color alone would have been little help in making "Sivertown" Treads stand-up in the tremendous ENDURANCE Tests which the 100-Mile-per-hour-Races of 1915 provided.

And Color alone—Black, White, Red, or Gray—can do little for the Consumer who buys a "Me-too" Black-Tread Tire, of imitated make, on the assumption that all Black-Tread Tires are likely to be made of same materials.

THE marvellous "Barefoot Rubber" now used in Goodrich FABRIC Tires (as well as in Goodrich "Sivertowns") is black only because we elected that color, primarily for

distinction and association with our SILVERTOWN CORD Tires.

When, therefore, the usual crop of "flattering" Imitations sprouts upon the Market DON'T assume that OTHER Black-Tread Tires have in them the "BAREFOOT-RUBBER" which made the enormous ENDURANCE of Sivertown Cord Tires possible in the 90 to 103 Mile-per-hour Races of 1914-15.

No Tires on the Market, Size for Size, and Type for Type, are LARGER than Goodrich, and none more generously good, at any price.

"Barefoot Rubber" is now made into Goodrich FABRIC Tires,—Goodrich "Sivertown Tires,"—Goodrich Inner Tubes,—Goodrich Truck Tires,—Goodrich Motor Cycle Tires,—Goodrich Bicycle Tires,—and Goodrich Rubber Boots, Overshoes, Soles and Heels.

Get a sliver of it from your nearest Goodrich Dealer or Branch.

Note (by comparison), the reasonably-low Fair-List prices at which these best-possible Fabric Tires are being sold, on a BUSINESS basis.

THE B. F. GOODRICH CO.
Akron, Ohio

GOODRICH "BAREFOOT" Tires

Please Mention GARAGE EFFICIENCY, when Writing to Advertisers.

Company, of Detroit, that will enable anyone to locate the cylinder that is missing. This device does away with guess work and shortens the time necessary to locate and remedy trouble.

A new plant is being built which will have a capacity of 300,000 Carter Detectors annually. It is thought that production will take care of the immediate demand.

Garage Equipment.

There is a vast fund of information in the catalogue recently issued by the Curtis Pneumatic Machinery Company, of St. Louis, Mo. That part of greatest interest to garagemen relates to air compressors, reservoirs, and similar equipment.

The book also contains information respecting other equipment which would be useful and valuable in any well-appointed garage. A copy of the publication will be sent on request.

Sell Covers.

Seat covers, top covers and kicker pads heretofore have been offered as a luxury. The Warner Auto Top Company, 1646 Central avenue, Cincinnati, Ohio, is offering a superior line as "an economy."

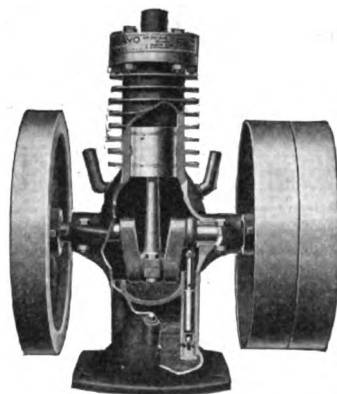
This is a dealer proposition that should interest every garage man who has an eye to extra profits from the ready sale

of a product that does not have to be stocked.

Covers are made to order. This concern is giving effective sales assistance, and it is worth while to ascertain what it is.

An Air-Cooled Air Compressor.

An air compressor put out by the Mayo Manufacturing Company, 60 East Eighth street, Chicago, has been designed to meet the requirements of the garageman. It delivers pure, clean air to the storage



tank and maintains, at the same time, a uniform supply of lubricating oil. A glance at the accompanying engraving shows the method of construction. The principle is entirely new.

A Jointless Piston Ring.

A new piston ring, known as the "Jointless" will soon be ready for the market. It will be manufactured and sold by C. R. Bryant, 1123 East 47th street, Chicago, Ill.

The Jointless readily conforms to new or old and worn cylinders for its expansive qualities maintain uniform compression, although expanded to fit a worn cylinder. Its peculiar formation is said to prevent clamping, locking or relative rotary movements.

It is composed of two pieces of identical make and design which, when they come together, form a complete ring. There is no meeting point for the ends of the rings.

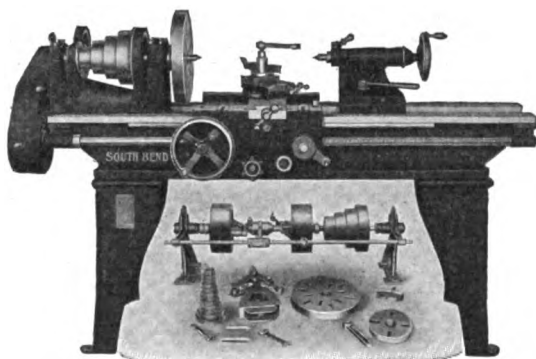
To Prevent Back-firing on Fords.

Telephone men employed by the Chicago Telephone Company are provided with Ford service cars. Many injuries of minor or serious character have been sustained due to back-firing while cranking the machine.

These injuries have been due largely to carelessness or ignorance. The maintenance department set out to create a device that would make the Ford foolproof in this respect. The result was a shutter which is controlled by the spark advance lever.

If the spark is not fully retarded this device permits the shutter to fall in front

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Regular Equipment, as Illustrated Under Lathe, is Included in Price.

The practical Lathe for the Machine and Repair Shop.

13-Inch Lathe, Complete,	\$185.00
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15 " " " "	230.00
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HOW TO RUN A LATHE

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CONTAINS OVER 100 ILLUSTRATIONS AND 300 SHOP KINKS
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SOUTH BEND LATHE WORKS
510 E. Madison St. South Bend, Ind.

Oxy-acetylene Welding and Cutting

By C. H. Burrows

An exceptionally complete and practical text book on a subject of financial importance to every mechanic and garage owner.

Oxy-acetylene welding has done more to increase the profits of the garage owner than any other device and this splendid book tells all about the subject from start to finish.

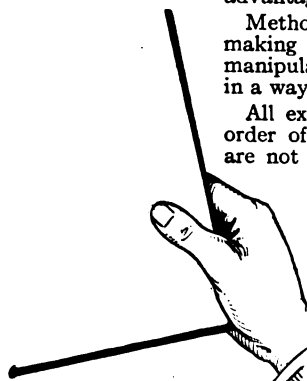
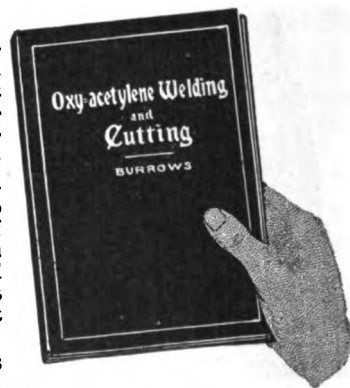
A valuable chapter is given to the several kinds of equipment available, their advantages and disadvantages are explained.

Methods of preparing the work, of making the weld, the details of manipulating the torch are explained in a way that is easily understood.

All explanations are given in the order of their occurrence, and they are not a stale recital of facts, but are highly interesting from cover to cover.

The price—\$1.50 net, or \$2, including a year's subscription to Garage Efficiency. Add 20c for postage.

Book Dep't **Garage Efficiency**
608 South Dearborn Street
CHICAGO, ILL.



of the ratchet at the forward end of the crank shaft into which the crank engages and effectually prevents the engine from being turned over. If the spark is fully retarded the shutter is drawn up out of the way of the crank and the engine may be started as usual.

This protection is being placed on all the Fords owned by the Chicago Telephone Company and not a single accident has been reported with a machine so equipped.

Ralph Owen, 6225 Ellis avenue, Chicago, Ill., has taken over the device which he says makes a Ford absolutely "fool proof" in this particular.

Get a Copy.

A copy of "Letters from a Successful Hudson Dealer to His Son," will afford the man who is trying to build up a business food for a great deal of sound thought. If the perusal of this book does not lead to action, the time spent going through it would be wasted. It tells how to get trade and keep it.

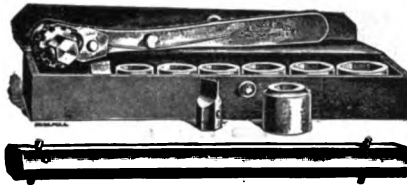
So far as the record discloses the letters remain unanswered. In fact, it might be said they are unanswerable, but that remains for the individual to decide after careful perusal.

Here is one statement: "Use your eyes! Be a sponge! Read! Think! Act!" A lot of us are telling you the same thing

and between us we will get the idea across.

A Ratchet Wrench.

It is not stretching the case to state that every garage owner and repair man should have one of W. B. Lane's Unique Ratchet Wrenches. This is a set designed to meet the needs of the repair man who



is forced to work in close quarters or close to a side wall.

This wrench is put up in sets of ten pieces. The price of a set is \$2.50, 7-inch extension bar 50 cents extra. Further information can be secured from this paper.

Material Shortage.

The high price of gasoline is not the only thing which is worrying automobile manufacturers today, and which will soon come close to the automobile dealer and owner.

It is beginning to be understood that

the shortage of material this year will interfere seriously with production on the very large orders which most automobile and accessory manufacturers have received, unless they have made special preparations to be assured of their raw material.

The Findeisen & Kropf Manufacturing Company, makers of the Rayfield carburetor, have been experiencing record breaking sales within the last few months, which they ascribe not only to the well-known merits of their carburetor, but also to the rise in the price of gasoline. The high price of gasoline has pushed sales to the limit, but the Rayfield people say that, owning their own smelter and foundry, with their own tool and pattern departments, they are well fortified against shortage of materials, and that their customers can be sure of getting their carburetors on time.

Dry vs. Wet Acetylene.

On the relative merits of the two the Searchlight Company, Karpen Building, Chicago, has something to say that should interest every one using acetylene for welding. Dry acetylene, it is claimed, gives much higher and more uniform heat and requires less oxygen. A treatise on this subject is available for all who are using acetylene for welding.

KENNEDY Auto Storage Covers

furnish efficient protection for cars in dead storage. They are made of strong, heavy paper, properly reinforced, and in standard sizes to fit any car.

Made only by

The Kennedy Car Liner & Bag Co.
SHELBYVILLE, IND.

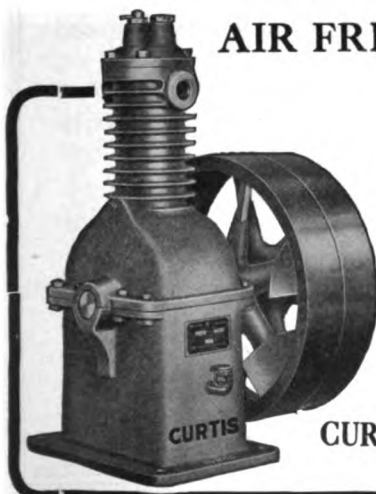
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By specializing, we make ridiculously low prices on regrinding cylinders.

Our prices include new pistons and rings. Work neatly and promptly done and absolutely guaranteed.

Write for Particulars

ALLEN & CURTISS CO.
MISHAWAKA, IND.



**AIR FREE FROM OIL—AT CORRECT PRESSURE
FOR EACH SIZE TIRE**

THE CURTIS GARAGE AIR PUMP

With its controlled splash lubrication will guarantee clean air—the compressor also has unloading device, air cooling device, inspectible valves, bearings adjustable for wear and is made in five sizes.

Curtis Correct Pressure Tire Filling Station

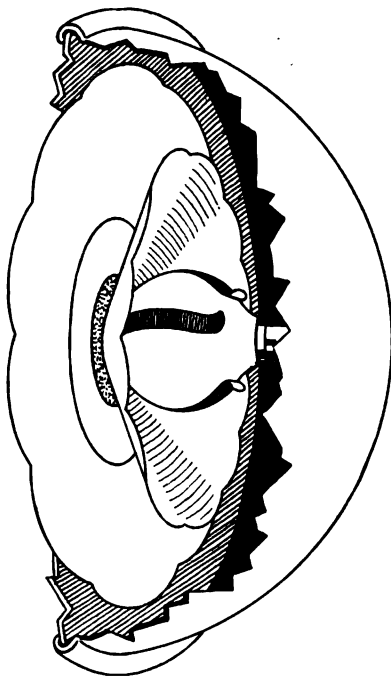
insures your customer's tires—gives them longer life and increased mileage—fewer blow-outs and fewer punctures and places the wear where it belongs.

Write your jobber for full particulars or write us.

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NEW YORK OFFICE, 530 CHURCH ST.



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The Only Dimmer Worth While Is The **SIMPLEX**

WHY?

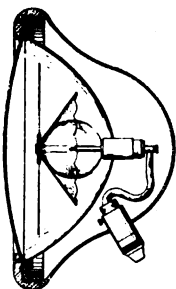
Because it complies with the law and does not affect the effectiveness of the light—you get a perfect driving light with this dimmer and the glare being softened you obey the law.

THE **SIMPLEX**

dimmer is the obvious solution of the dimmer problem. It is easily adjusted, being clamped to the light bulb by flexible steel springs and can be removed or put on in a jiffy.

The Retail Price \$1.00

Is Less Than the Cost of Any Other Dimmer



The inventor and manufacturer, a practical garage man, believes his brothers in the trade will appreciate the motive that influences him to offer dealers who read this an opportunity to buy the Simplex at half the retail price, 50 cents a pair, in dozen lots.

Place your orders now as the business is to be sold to a concern that may not care to give you a chance to make 100 per cent on the first cost.

Even if your town or city council has not passed a dimmer law they will soon and you better have a stock of Simplexes on hand.

Shipments C. O. D. with privilege of inspection before payment if you desire to do business that way. Address

SIMPLEX DIMMER COMPANY

1634 Transportation Building

CHICAGO

JUST PUBLISHED

and you need it—the most frequently needed and by far the most useful book on automobiles ever written.



Automobile Repairing Made Easy

By Victor W. Page, M. E., member of the society of Automobile Engineers, Author of the "Modern Gasoline Automobile," etc.

Here are one thousand and fifty-six pages of valuable information, one thousand specially made engravings on five hundred plates, including ten folding plates.

This book is a comprehensive, practical exposition of every phase of modern automobile repairing practice.

The only book of its kind, and it fills the bill.

You will find it outlines every process incidental to motor car restoration. A very definite and accurate idea of plans for workshop construction, suggestions for equipment, the power needed and the machinery and tools necessary to carry on the business successfully. It tells how to overhaul and repair all parts of all automobiles.

This book also contains special instructions on electric starting, lighting and ignition systems; tire repairing and rebuilding; autogenous welding, brazing and soldering; heat treatment of steel; latest timing practice; eight and twelve cylinder motors.

It is a reliable guide to mechanical efficiency for all repair men. You will never get stuck on a job if you have this book. A complete index makes for easy reference.

SPECIAL—Readers of Garage Efficiency are given first chance at this book of books. The Price is \$3—net. Shipment will be made by express, charges collect—or—send us \$4 and we will send prepaid and include a year's subscription to Garage Efficiency.

Send that order today while the impulse is warm.

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THE GARAGE PRESS

608 South Dearborn Street

CHICAGO, ILLINOIS



How did you secure your first customer?

How did you secure each succeeding customer?

What provision have you made to secure future customers?

It is the future to which your attention should be directed. The surest and quickest, and at the same time most economical means you can employ to insure a prosperous future, is an electric sign. You have, no doubt, realized this long ago. Let us show you how cheaply your ideas can be carried out.

FEDERAL SIGN SYSTEM (Electric)

Lake and Desplaines Streets
CHICAGO

Money Making Machines for Every Shop

For reboring old worn and scored Ford Cylinders. Enables the small shop to rebores cylinders as well as the largest shops with expensive machinery.

Makes the Ford Motor like new. Reboring Ford Cylinders is a profitable business in any section.

The Davis Milling Attachment and Compound Table

Clamps to any drill press table, with Dovetail Cross Slides, operated with screws and ball cranks, by hand. Saddle is graduated and swivels to any angle. Table is slotted for clamping down work, chuck or vise.

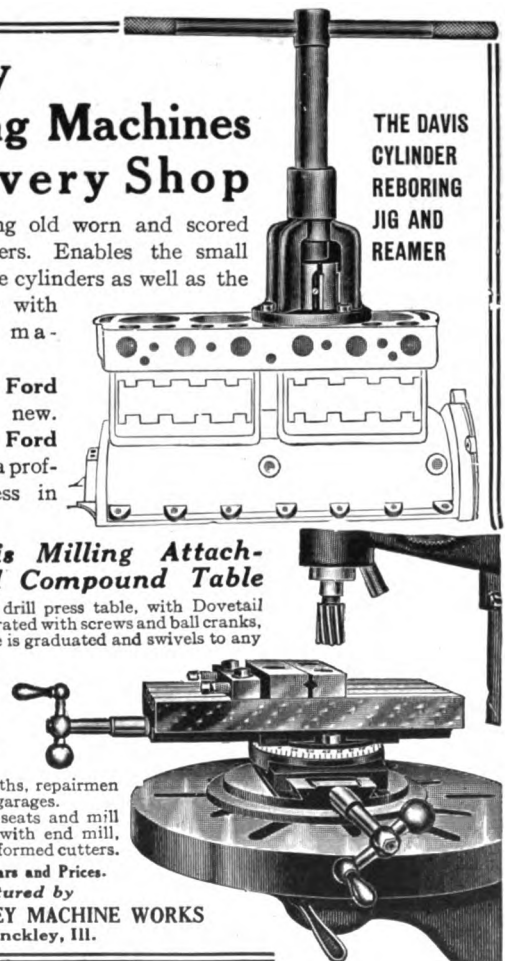
Especially adapted for small shops such as blacksmiths, repairmen and automobile garages.

It will cut key seats and mill cams. For use with end mill, fishtail cutter or formed cutters.

Write for Circulars and Prices.

Manufactured by
THE HINCKLEY MACHINE WORKS
Hinckley, Ill.

THE DAVIS
CYLINDER
REBORING
JIG AND
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Pondelick Bros.

Will Pay

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if they fail to duplicate any part of any make of automobile or truck, foreign or domestic, submitted to them. That sum will be paid to the person sending the order.

Parts of any machine can be duplicated in one to three days' notice. All welding is done at their risk. Do not compare this work or welding with that of others. If you have a broken part or parts that others cannot weld or repair, send them to Pondelicks. They increase the durability of many parts — even where the manufacturers fail.



Supply your customers with "Pondelick's" anti-leak piston rings, and you insure them against engine trouble.

They have the largest and best equipped plants in the United States for the repair or reproduction of automobile parts.

Cylinder regrinding, new piston, special casting, heat treated, Pondelick's self-adjusting anti-leak piston rings, new wrist pin, hardened and ground, bushing, made of genuine bronze, including fitting and assembling of connecting rod to piston for **\$15.00**.

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Free Samples and Prices of any of the above forms upon application.

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for forms.**

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A BLANK BOOK with full instructions, easy to fill out, so that any garage owner can figure his Profit or Loss EACH MONTH.

CAN BE USED WITH ANY SYSTEM of Bookkeeping, in any garage, large or small.

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ROCKFORD, ILLINOIS

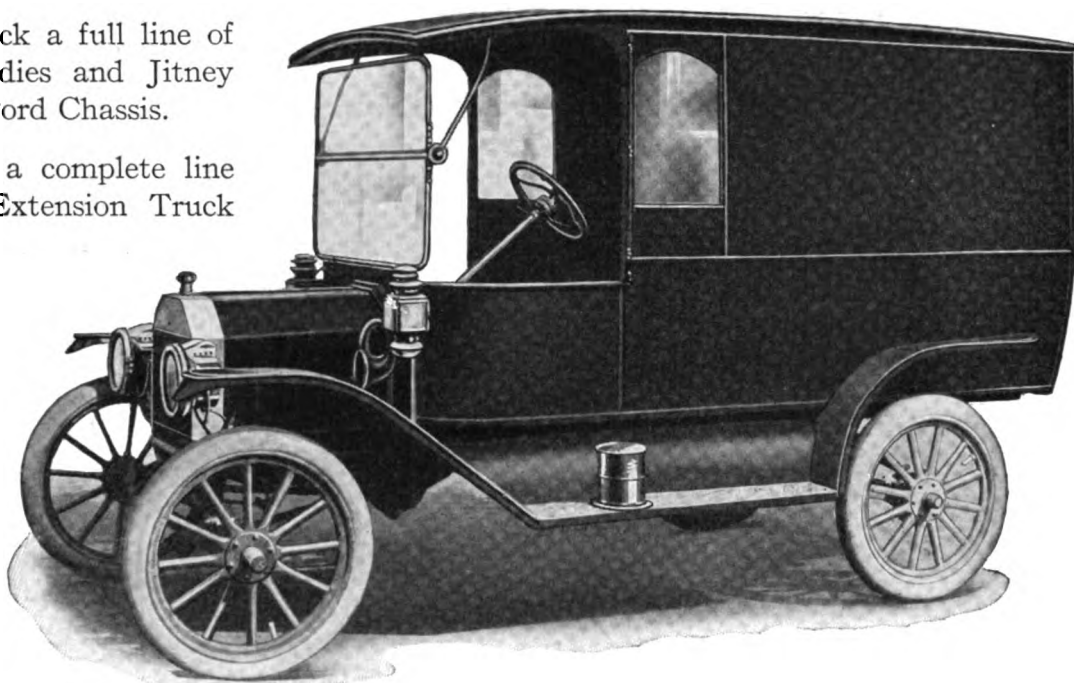
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We carry in stock a full line of Commercial Bodies and Jitney Busses for the Ford Chassis.

We also make a complete line for the Ford Extension Truck or any other chassis.

Write for our twenty-page Commercial Body Catalog and Dealers' discounts.

We will make you some attractive prices.



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Accountants—Auditors—Systematizers

We are making a specialty of Garage Accounting Systems. We are prepared to make audits, to undertake investigations to prepare statements, to devise and install the kind of accounting system you require.

Our Terms Are Reasonable

We can maintain books at a cost to you of \$10 to \$25 per month. All dealings held in strictest confidence by capable and trustworthy, expert accountants.

Investigate, then let us quote you prices.

Standard Audit Company

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Room 372

Chicago, Illinois

Modern Garage Service

WHETHER it be an electric or gas garage nowadays, many things are expected by customers that were not thought of a few years ago. Garage operators have been compelled to assume obligations and liabilities in the handling and delivering of cars to customers they never dreamed of. For instance, hikers were only for electricians just a short while back, now gas garages use them to hold their trade. We know hikers have accidents causing sometimes severe losses to the garage owner.

Our ILLINOIS GARAGE OWNERS' POLICY completely covers the needs of the garage owner, even with a livery in connection. It is but one policy but it covers NINE hazards.

Write us for further information.

AMERICAN AUTOMOBILE INSURANCE COMPANY

HARRY M. McCONNELL, General Agent

516 National Life Bldg.

Chicago, Illinois

HERE'S A BOOK YOU NEED

A complete Ford Instruction is also added.

Read the subjects treated below and bear in mind each and every subject is fully treated in a simplified manner with clear illustrations.

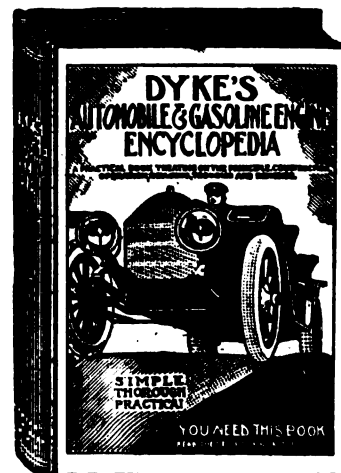
Step by step the book takes you through construction engines; 4, 6, 8 and 12 cylinder, carburetion, valve timing, ignition timing, and all up-to-date electric systems—repairing, adjusting, etc. The repair subject is very complete and extremely useful. Hundreds of illustrations on this subject alone.

This book is compiled by A. L. Dyke, the man who invented the first auto supply business, manufactured the first valve feed carburetor, and published the first practical book on automobiles in America.

The book is endorsed by Elwood Haynes, Charles Duryea, Lord Montagu (founder of boulevards in London), Barney Oldfield and other notables. It is read by the faculty of five Automobile Schools.

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Free Supplement — with each encyclopedia (after Feb. 15, 1916)—144 pages, part in two colors, treating on the principle, construction, care and adjustment of Packard Twin Six, King Eight, Willys-Knight, Maxwell and Ford.

Price \$3.00 (Add 25 cents if wanted prepaid)

SPECIAL This book, prepaid, and one year's subscription will be given for \$3.50.

If you are already a subscriber, then give the subscription to a friend and get the book.

Address Book Department, Garage Press, Transportation Building, 608 So. Dearborn Street, Chicago, Ill.

VOL. VI.
 MAY, 1916.
 NO. 5.

GARAGE EFFICIENCY

THE NATIONAL GARAGE MONTHLY

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Piston Ring Performance

Is No Longer a Problem

Leading Automobile Manufacturers have Satisfactorily Solved the Long Existing Question of Piston Ring Efficiency. : :



From the very inception of the gas engine, loss of power, motor carbonization, excessive consumption of fuel and lubricant have been known to exist by reason of defects in the piston rings in common use. 675 patents covering piston rings of one kind or another have been issued. But not one could withstand the exacting mechanical requirements of the automobile engineers until the introduction of

Burd High Compression Piston Rings

Most American Automobile Manufacturers now either employ Burd Piston Rings as standard Factory Equipment or suggest their use in Service Station replacements. The problem with them is not the kind of piston rings to use, but how to get more Burd Rings. The findings of America's foremost engineers should be worth your consideration when making piston ring renewals. Sold under an absolute warranty of performance. Your money back if they fail to fulfill every claim we make for them.

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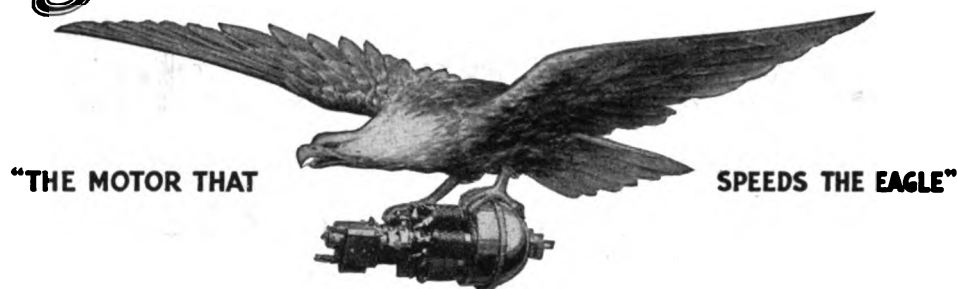
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A Car You Can Afford to Own



Three-quarter side and front view of Model 1-A Eagle Light Car, Roadster, equipped with 18 H. P. Macomber Rotary Air-cooled Engine. Photo taken on 18th St., Chicago; the residence of the late Geo. M. Pullman in background.

Luxury and Economy a Combined Reality

View of Model 1-A Eagle Light Car, Roadster, equipped with an 18-20 H. P. Macomber Rotary Air-Cooled Engine. Almost total absence of vibration. Gasoline consumption more economical than reciprocating engines of equal weight and power. Price with Standard Equipment \$700.00.

SPECIFICATIONS—Motor, Macomber Rotary. Cylinders, 3½ bore, 3½ stroke. Cooling, Air. Ignition, Atwater Kent. Electric starter. Clutch, multiple disk. Transmission, selective sliding gears. Rear axle, full floating. Front axle, I beam, drop forging. Wheel base 108". Gear shift, center control. Wheels, extra heavy second growth hickory or wire wheels at slightly increased cost. Fenders, crown type. Springs, Cantilever type in rear, half elliptic front. Tires, 30x3½. Detachable rims.

STANDARD EQUIPMENT—This includes all electrical equipment, lamps, one-man top, windshield, Stewart-Warner Speedometer, electric vibrator horn, foot rail, foot accelerator, one extra rim which is held in place by special tire holder, tools, jack, pump and tire repair outfit.

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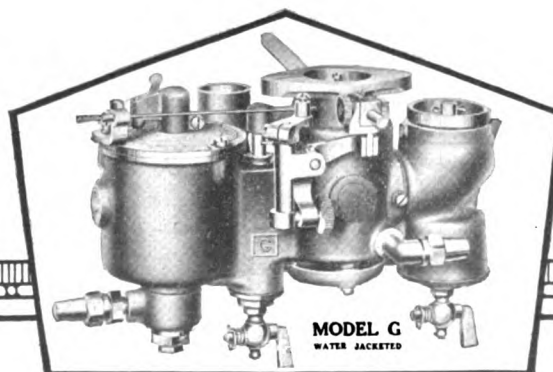
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WESLEY T. CHRISTINE
Editor and Manager

Garage Efficiency

OFFICIAL SPOKESMAN FOR
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DETROIT GARAGE AND STATION OPERATORS ASSOCIATION
ILLINOIS TIRE AND ACCESSORIES DEALERS' ASSOCIATION
GARAGE OWNERS ASSOCIATION OF OHIO
IOWA RETAIL AUTOMOBILE DEALERS ASSOCIATION
GARAGE OWNERS ASSOCIATION OF MICHIGAN

Volume VI.

CHICAGO, MAY, 1916.

Number 5.

Devoted to the interests of
**GARAGE OWNERS
GARAGE OWNERS' ASSOCIATIONS
AUTOMOBILE and
SUPPLY DEALERS and REPAIR MEN.**

FOUNDED BY
**THE CHICAGO GARAGE OWNERS'
ASSOCIATION**

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GASOLINE EXPLODES.

Some men who work around garages where large quantities of gasoline are sold for fuel for combustion engines seemingly do not understand that when released in vapor and "touched off" it will explode.

Here is part of a statement respecting the origin of a fire in the C. A. Fritz garage, Zanesville, Ohio.

"The blaze had its origin in the basement of the building and, according to Chief Hal Tanner, was caused by pouring gasoline from one can to another in the vicinity of a lighted gas jet."

That is a very simple and effective way to start a fire. It will work about eleven times out of nine.

If you do not want to start over, if you are not "anxious to sell out to the insurance companies," watch your gasoline, your oils, refuse, dust, watch the smokers, keep the building clean and keep fire extinguishers or barrels filled with water and fire buckets handy.

If you do these things you can save a

bit on your premiums. The insurance companies do not want to burn out if they are the right kind of insurance companies.

STORAGE DECLINING (?).

It is not absolutely known that fewer automobiles are stored in public garages now than formerly, but there is a well defined tendency on the part of the car owner to keep his machine at his residence, where that is possible.

Many of the new apartment buildings going up provide garages for the tenants who own cars.

Small buildings are being erected as neighborhood garages. The rent is low and the buildings have separate rooms. There is no attendance and no service.

From Schenectady, N. Y., comes the following story and it portrays a general rather than local condition:

"Building Inspector Mischler has issued building permits for 30 garages since April 1. This does not mean, it is contended, that the number of Schenectady residents have braved the advancing gasoline cost, and become car owners. It is claimed, however, that storage rates have advanced to such a point in public garages that the average automobile owner finds it much more profitable to build some kind of a shelter for his machine on his own premises.

"The plans of many of the garages provide for mere shelters, though few are fireproof and durable materials. The prices range from \$30 to \$1,000."

Up and at 'em.

Garagemen who rely on storage as an unfailing source of revenue may in the near future find the business dwindling instead of increasing.

It is safe to say the demand for storage and care will not cease altogether, but it is rather doubtful if it will increase materially in the future. The reason is obvious. Shelter for a car or several of them can be built on the rear of a lot and rented at a nominal price.

More and more in the future the garageman must look to the sale of accessories, supplies and parts and to repair work for his profit.

Again, up and at 'em.

Lay the foundation for capturing a part of the trade of your locality now. The storage problem will adjust itself in its own time and its own way. It is something you cannot control or regulate.

If you begin now you can capture your share of the supply business. If you do not go after it, others will, and it is easier to divert the stream to trade to your door now than it ever will be in the future.

HOW TO SELL THINGS.

When a customer comes in with a crumpled fender and tells you he wants the damage repaired, you know exactly what he wants. It is a very simple matter for you to get a new fender and put it on his car.

If you knew he was in the market for a bumper, for a set of seat covers, for an auto trailer, for tires or for any manner of supplies or accessories that are used by the motorist, it would be very easy for you to capture his business.

You do not know those things because in many instances the car owner himself is not aware of what he needs and wants.

If you, the garage owner, operator and car and accessory dealer, want to increase your sales you must be up and about it. The mail order houses, the department stores, the hardware dealers and others are offering your customers supplies.

He can buy gasoline at the general store. Cleaning and polishing compounds can be secured from the furniture dealer, the hardware store, the druggist and others.

Arrangements to secure seat covers can be made with the department store, the furniture dealer or possibly with other concerns.

If you want to sell seat covers you

must be the first man to put the seat cover idea into the minds of your customers, or you must present the idea in a way that will be attractive.

The big feat of modern merchandising is to make people want things. When a customer drives up and tells you he wants a new set of spark plugs you can supply that demand, if you have the plugs, without drawing on your resources as a salesman.

If you want to sell things which your customers do not come in and demand, you must do some missionary work. The child's definition of missionary was 1 cent—one sent. Why not spend a number of 1 cents sending out attractive literature which you can secure from manufacturers and distributors without cost and which has been compiled and printed to create a feeling of need for the particular article or product of which the literature treats.

You serve your own interests by following these suggestions, and at the same time you are serving and conserving the interests of your customers. It will cost you very little to try out these ideas. The effort will wake you up and keep you awake. Try it.

THE REAL TROUBLE WITH THE GARAGEMAN.

That old cat has escaped from the bag, a yawning closet door discloses the time discolored bones of the family skeleton, the family's dirty linen is in the tub or on the line, somebody has spilled the beans, the fat's in the fire.

Well, "it ain't" no use crying over spilled milk, even though the real reason why garagemen are dubs has been made public.

It's an "awful" blow.

It all comes from greeting a professor of English with this nerve-shattering salutation: "Ain't it an awfully fine day, Professor?"

Can you wonder that garagemen are losing trade when they are guilty of such a crime?

When will garagemen wake up and realize that "Men and women engaged in the automobile business should always bear in mind that the car owner may easily be offended by a simple error (grammatical)?"

Do you remember the time that a motorist drove up through a glaring sun, looked into the repair shop where you were trying to get a hard job lined up and asked: "Who's there?"

And do you recall your answer, your hideous, ungrammatical reply? You said: "It's me." You should have said: "It is I, please sir."

You offended that man. He has not been in your garage since that fateful day. It's true he only wanted to buy some free air and it is true, also, that he lives five hundred miles from your garage, but

if you had answered, "It is I," may be, perhaps, at any rate there is a possibility that he would have purchased all of his free air from you, even though he had to drive five hundred miles to get it.

There is a commendable movement on foot to grade garages in the same way the educational establishments are known and classified. There is to be the common or garden variety, corresponding to the grammar schools, then will follow the high school garages, the college garages, the universities and so on to the *n*th power of educational development. The determining factor will be the grade of language employed by the owner and his aids—BEWARE.

When one of your best customers comes in and says, "Well, Bill, old scout, I gotter take that car over to the University garage," resign yourself to the inevitable. That car must go.

If you want to learn the reason proceeded in this way:

"Our repair work is all right, ain't it?"

"Sure pop," the customer will answer.

"Car looks all right to me," you will say, sorter fishing for an opening. "Boys did a nice job of polishing after they washed the old boat last night."

"They sure did," your customer will agree.

"We haven't overcharged you, have we?" You will say this a bit anxiously.

"Nary an overcharge," your good paying customer will retort blythely.

Then, still fishing for a reason, you will continue: "Awful sorry to see that old boat leave this place. She's 'terribly' peculiar and don't give the mileage unless she's handled just so. Me and the boys here, we're 'awfully' proud of having kept 'er on the road and we hate to lose her."

In the end you will have to come to it and ask plumb straight out: "If the service is all right here, why in Sam Hill, Blue Blazes and some of the others do you want to change?"

That good paying customer will draw himself up in a dignified manner and reply:

"A week ago my wife and daughter left the car here. One of your men was asked to look after it. The man was entirely respectful and seemed anxious to please, but," and the good paying customer will place stress on his words, "but he said: 'Me and Bill will look out for your car, Mrs. Anderson.'"

"They both are nervous wrecks," the good paying customer will continue sadly. "They feel our car is tainted with the odium of that remark. I am sorry for you. I will send for the car today. Good-bye, forever, and don't you ever speak to me again until your words have been entirely sterilized."

TEN MINUTES, PLEASE.

Within fifteen days after you receive this copy of **GARAGE EFFICIENCY** can you find ten minutes to devote to your own interests?

We understand, of course, that you expect to devote all of your time to the promotion of your own interests, but will you set aside ten minutes and **USE IT IN OUR WAY?**

If you wrote a letter on a subject of very considerable interest to the person to whom it was addressed you naturally would expect a reply. This is written to you personally and individually and we expect a reply.

Instructive correspondence with many individual operators has resulted from our previous efforts, **BUT WE HAVE NOT HEARD FROM YOU.**

If you have nothing to say to us, write to one of our advertisers.

Subjects presented in this issue are of real concern to every live garage operator in the country.

We know that, and know that you know it. They are less live than they should be because we have not received the benefit of your opinions.

You have opinions. Every one in the trade is aware of that fact. You are not ashamed of them, for they are a part of you and a part of your business.

Now, let's get those ideas of yours in circulation. Let's find out what the other fellow thinks of your view.

Let's put it up to Butler, the fellow who is operating a garage in the next town. If you two agree there must be something worth while in your views. Perhaps the same idea is held by many who are situated about as you are. If we can get your ideas, we can, in time, make **YOUR** idea the standard and all men will believe in it, preach it and practice it.

The big thing is to make a start and that is why we want **TEN MINUTES** of your time within the next **TWENTY DAYS**.

? ? ? ? ? Questions ? ? ? ? ?

When two or more men engaged in the same lines of business foregather they talk of that which is uppermost in their minds and "Shop Talk" sooner or later is the theme of conversation.

Problems of mutual interest and concern come up for consideration. Various methods of meeting the demands of the trade are discussed and compared. There is a real effort to get at the meat in the coconut.

If all the garagemen could get together and compare and contrast methods now in use the knowledge resulting from such a conference would bring about a revolution in the trade.

Every man in the business has time or could find time to contribute.

You garagemen, however, are not noted for your letter writing proclivities. You don't like to write letters. You haven't the time and you claim you are not accustomed to writing for the press.

Just forget about the "PRESS" part of it. Just sit down and tell your story as you would tell it to an acquaintance that you knew was interested and that you knew also would understand what you were talking about.

Here is a subject that has been discussed many times:

How Many Cars Do You Handle Regularly Per Man Employed?

Think a bit! You would like to know, of course, just how many cars can be handled satisfactorily.

Probably you would like to know just what the average is for the garages of the country. Then you would like to know, we assume, what the low figure is and what the high figure is and what is done in the garage

aside from storing and caring for cars.

Accurate information cannot be given unless you send in your figures, for the information would not be complete unless your business was figured in it.

When you send your figures in tell how many men are employed in each department.

Storage Is Rent, Do You Collect in Advance?

Well, do you collect in advance?

If you do you are the exception. While it is the custom of garagemen to pay rent in advance—they did not establish the custom—it also is the practice to collect when the customer gets ready to pay, and the garagemen did establish that custom.

By advancing the rent garagemen are loaning their customers the cost of storage for a period of thirty to ninety days without interest.

The capital required to finance this branch of the business would, if wisely invested, cover the cost of a saleable stock of supplies and accessories from the sale of which a very considerable profit could be made.

Furthermore, releasing the rent money in this way would give the garagemen more capital and enable him to discount many if not all of his bills.

The only thing that stands in the way is a determination to "get it in advance."

Do You Want the Accessory and Supply Business?

Thousands of manufacturers and distributors have created ways and means of interesting your customers in certain lines of accessories and supplies. In many cases sales are made direct or by a large central house selling at retail. In many cases the wholesalers sell direct to the car owner at garagemen's prices.

Scarcely one of such concerns and institutions desire

to sell at retail. Their conclusion has been: "If the garageman won't, we will."

Many are seeking the trade of the dealer and are prepared to co-operate in a way that will prove very effective. It is up to the garageman to profit by the selling aid and advertising assistance such concerns are ready to give.

Honestly, Now, What Do You Gain by Cutting the Price?

Many protests have been voiced by the garagemen of Chicago against the practice of some jobbers to give dealers' prices to any one who happens along and appears to know the difference between wholesale and retail prices.

In reply the jobbers and wholesalers assert it is the common practice of many garagemen to cut the price or to give the customer the full benefit of dealers' discounts.

This condition is not a local one. The wholesaler con-

tends that if the garageman is content to rely solely on storage, washing, and repairing for his profits, if he makes a practice of giving his customers the full benefit of the discounts he receives as a dealer, it does not matter in the least who makes the sale.

In other words, if the garageman will not lift a finger to protect himself, why should others seek to protect him?

These questions concern you. Your best thought is needed to help straighten them out. Will you help?

"The Public and the Garage"

By ROBERT BLAND

President National Automobile Trade Association

GETTING AND KEEPING ACCESSORY AND SUPPLY TRADE.

I think that trite pleasantry, "It isn't the first cost, it's the upkeep," first was applied to automobiles.

The first cost is a very considerable item to the average person and the upkeep is a steady drain on the pocketbook of any one not able to keep a car or two as a matter of course.

The cost of automobiles and automobiling is coming down steadily and is booked for still further declines. Motor cars are better and cheaper now than ever before, notwithstanding the recent slight advance in the price of many popular makes.

Materials go farther because the motors are better built and do not eat up gasoline, oils and grease so fast.

Tires are better now than ever before and relatively are no higher. The motoring public is becoming cognizant of the "per mile" cost of operating and that, in the end, is the factor that determines values.

On the basis of so much per mile for tires, gasoline, oil, etc., it would be very easy to figure out what products are actually the best and cheapest were it not for accidents and unusual stresses to which cars are subjected. It is the unforeseen factors that upset calculations.

Buying Supplies and Accessories.

This "upkeep" is something the public encounters every day. Everything used on or by an automobile seems high and some of them actually are high, higher than they should be. Consequently there is a disposition to shop around for the purpose of getting better prices.

Many articles appear to be about the same. They are the same size and look alike. One costs \$15, the other \$20 and the car owner concludes he has saved \$5 by taking the low priced product. In reality he may have lost more than \$5 and may never learn of his loss. Superior workmanship and the very best materials cost money, but the products are actually worth the price asked.

How It Works Out.

A great many garagemen are making a desperate effort to capture the accessory and supply trade.

Some time ago when the garage operators first began to receive dealers' prices a few of them thought price concessions could be used as a lever to secure the patronage of the car owners of their vicinity. Consequently they dropped a quiet hint that the car owner could save

money by buying accessories and supplies at that particular garage.

In other words, they offered the car owner the benefit of the low prices they were receiving. If they did not have what was wanted they gave the customer an order for the goods on the wholesaler.

What the wholesaler could not understand, when he began to make an investigation, was what the garage operator was getting out of it. After getting a line on the situation he concluded that if



Robert Bland, Evanston, Illinois.

the garage owner did not care to protect himself, that he, the wholesaler, was not particularly anxious to extend undesired protection, especially when it might cost him heavy sales.

So he turned to with a will and began to sell indiscriminately to any one who came along. That condition continues in a halting, limited way.

It is so bad now that some concerns will not honor a request from a garageman, but they do recognize a card in the Chicago Garage Owners' Association.

The Owner's End of It.

Having tasted the sweets of wholesale prices the car owner who was "next" began to demand them as a right. Some of them, perhaps, thought the garageman was receiving much better discounts than they gave their customers.

Things are righting themselves slowly. Instead of demanding wholesale price some patrons of garages are contenting themselves with a modest request for a fifty-fifty split.

The condition is far from a healthy one, but all three, garageman, wholesaler

and car owner, are doing their share to keep it in that state.

The worst phases of this condition have passed. Supply houses, manufacturers and garagemen have partially awakened to the chaos that has been ushered in and are trying to straighten things up. It's a big job, for the car owner, who would not think of asking his grocer, his butcher, his druggist or any other retailer to sell at wholesale, who realizes it would be foolish to do so, persists in demanding a split or all of the profit to which the garageman is entitled on the things he sells or should sell.

The Car Owner Pays.

In the end the car owner must pay and pay a good round price for all the accessories, supplies and care he receives. Mostly he pays without realizing that he is paying.

If the car owner will stop for a small moment to think this thing over he will admit that the garageman must "get his" in some way. If he is forced by himself, his competitors or his customers to forego a legitimate profit on what he sells or should sell, then the profit must be made from storage, washing, repairs and the things which the garageman furnishes and for which he charges more than they cost.

There is no more reason why the garageman should furnish accessories and supplies at cost than that he should furnish storage, should wash cars or repair cars and charge the customer exactly what the work cost him, the garageman.

The garageman must make his living out of his business. In the vast majority of cases he has no other source of income. If the public refuses to pay a fair profit on certain parts of that business, then the other parts or departments must make good the loss, or the business must be conducted without a fair profit.

If the last be the alternative, then the public can reasonably expect to receive service that is unsatisfactory because it will be rendered by dissatisfied men.

To the Garagemen.

What I have said is not for the purpose of excusing the garageman. He is to blame if he does not get this business, for no one has a better opportunity to capture it.

Many of the garages do not maintain adequate stocks; some of them keep their premises in a dirty, ragged condition. Ordinarily you do not find a proper display. The goods are laid away in dark corners, kept under lock and key, the employees do not know the stock or the price, and consequently the car owner goes where he will receive courteous treatment and be supplied with just what he wants in the manner he desires to be supplied.

A little greater consideration on the part of both garageman and car owner would work out in a very beneficial way.

Buying an Automobile, The Motor Car as an Investment

By J. C. Thorpe, Urbana, Ill., Secretary Garage Owners' Association of Illinois.

The very rapid development of the automobile business in our country has been the most astonishing of any industrial progress, in any line, that has a very wide interest for practically all classes of people. In the comparatively short time of fifteen years this industry has grown from an infant of a very much questioned future into a full grown, healthy and prosperous being. There are now over 2,000,000 automobiles in use in the United States; there are 5,000,000 people, one-twentieth of our population, engaged in the automobile and allied industries. The business itself occupies the third place in point of valuation of product of all of the industries of our country.

The automobile has become so strong in its appeal to the public, whether regarded as an item of pleasure or business, that the desire to own a motor car might easily be said to be universal.

During the past five years the standardization of automobiles and automobile equipment has been such that it is possible to apply the keenest business judgment in the consideration of an investment in automobile service and satisfaction. The literature of the subject is becoming of such general distribution and so fair in its treatment of the subject that it does not require acute, technical knowledge or the experience of an automobile expert to analyze technical mechanical details or problems of operation and maintenance. It does require an open mind and an honest purpose.

In the development and analysis of a proposition to purchase an automobile the following factors should be given careful consideration from an investment standpoint.

I.

The Integrity of the Factory. As has been stated, automobiles have become so well standardized that one need not be concerned, first with respect to the car itself, but a careful study of the experience of the factory in building automobiles, their ability to finance and administer the affairs connected with their production and their attitude toward the car owners should be of first importance.

II.

The Integrity of the Dealer and facilities for local service. In any transaction involving the purchase and sale of merchandise of any description there should always develop a spirit of good will between the buyer and the seller, which contributes very largely to the sat-



J. C. Thorpe, Urbana, Illinois.

isfaction of the buyer with his investment. This is of peculiar importance to the purchasers of automobiles, because the principal care of the car will be in the hands of the owner, and it is true that the greatest number of automobile owners do not have especially accurate or expert knowledge of motor car details. It is clear, therefore, that the owner has a right to expect such assistance and care from the dealer as shall guarantee to him the permanent use of his investment. This character of service can only be guaranteed by the legitimate dealer who has a carefully organized service department of his own that can be depended upon to conserve the interests of the patrons of the dealer's business.

III.

Most Approved Mechanical Details. The literature on the subject of motor car design and construction is such that any one interested can very readily gain for himself sufficient knowledge to intelligently analyze the general features of any car under consideration. It may be properly assumed that the best brains in the automobile industry are the engineers of the various manufacturers of standard

cars, whose character depend upon the accuracy of their judgment and the continued development of their skill. If this is a fact, and it can hardly be disputed, one needs only to learn the consensus of opinion of such engineers in order to satisfy himself respecting any detail. Such information is available in many text books now in print and particularly in the motoring magazines.

IV.

Smoothness, Quietness and Flexibility of Performance. Upon the request of any one interested in the purchase of an automobile the legitimate automobile dealers are always ready with demonstrating facilities for making any comparative tests of cars that are reasonable. The impression of the prospective purchaser regarding the above items may be depended upon as a strong factor in influencing a choice after having the advantage of the dealer's demonstration.

V.

Comfort and Security in Riding Qualities. As in the above item, No. 4, the facilities of the local dealer for demonstrating purposes can be reasonably called upon for securing proper impressions of these two very important items. Judgment respecting the sense of comfort and security in riding in an automobile is very closely related to the personal equation of the driver and the passenger. It does not depend in any sense upon the opinion of the salesman or the peculiar mechanical details of the particular car.

VI.

Permanence of Type. There can be but very little satisfaction to the owner in driving a new car which is soon out of date, and this need not be necessary in the present development of the automobile business. The permanence of the model or type of car is practically assured by the integrity of the factory itself. Most standard manufacturers develop their product along conservative lines so as to conserve the interests of the purchaser in this particular detail. It is only the short lived factory—the ones that are weak in financial organization or administrative ability that disappoints the owner in this regard.

VII.

Eventual Valuation for Re-sale or Exchange. The ordinary life of an automobile is a subject for very frequent discussion. The facts are that no one is able to state in any accurate terms just how long an automobile will give serv-

ice. One of the principal contributing causes for this is the very frequent exchange of ownership. One usually purchases a car, and, after using it for from three to five years, offers it in exchange for a new car or sells it to some one who does not feel justified in the expense of a new car, and from that date on the old car begins to lose its identity. In the face of these facts it is important that the eventual valuation of an automobile for resale or exchange be given careful consideration. This information can be readily obtained from the "Central Market Trade Report" that is issued by the National Trade Association.

VIII.

Accessibility and Economy of Operation. One of the largest items of expense in the use of a motor car has to do with the cost of operation and maintenance. It is therefore important that the accessibility of mechanical details and an assurance of economy of operation should influence the choice of the prospective purchaser.

IX.

The Good Will of Owners. In accordance with the peculiarities of human nature, it is very generally true that most people are persistent in their efforts to

support their own judgment, even in the face of apparent error, so that the apparent good will of the owner of any motor car needs to be considered with care. There is a certain preponderance of evidence, however, which can be gathered that should be considered as having direct bearing upon the investment feature of purchasing an automobile.

X.

Reasonableness in Price. It is not a far-fetched conclusion that one may take all of the above facts, in the careful consideration of purchasing a car, and combine them with the price of the particular car under consideration and get an accurate trial balance, which should prove an accurate basis for determining the merits of various automobiles.

It has long been an established and fundamental principle of accurate merchandising that one gets just about what they pay for, and this is particularly true in the purchase of an automobile, although it is not in full accord with a rather prevalent public opinion. An attempt to economize or save money that reflects discredit on any feature presented in this discussion will be fully balanced by an expenditure at other points within the experience of the car owner.

Economy of Using to Capacity Compressed Air in the Garage

The average garage man looks upon his air compressor as a necessary evil and expense, because he does not make the use of it which he should.

Compressed air is used extensively for many different purposes in every modern machine shop and industrial plant, and there is no reason why it could not be used the same way in the average garage.

Very seldom is the garage compressor called upon to work but a small portion of the time where air is supplied only for filling tires. If it can be operated the balance of the time and made to supply air for shop use it can be made a paying investment. The capacity is there, if the garage man will but utilize it. Every efficient shop realizes that real economy consists in getting maximum output from all of the equipment.

The illustration given here shows one of the many applications of air in the garage. An air hoist suspended from an overhead trolley will cost the garage man no more than an ordinary slow, inefficient chain block and the air hoist can be operated by one man for heavy loads instead of two or three. By running the I beam overhead the hoist can be made to serve any desired area of floor space. The time saved and the labor saved will more than pay for an air hoist when it is considered that the power is there to

operate the air hoist whether the garage man uses it or not.

Extent of the Use of Air.

A few other simple applications of compressed air are given as follows:

1. Air brush or spray painting. Much smoother painting and varnishing can be done than with a hand brush and less paint is used. This is the system used by the auto manufacturer himself in painting bodies and parts.

2. Vulcanizers for inflating air bags.

3. A vertical or horizontal overhead air hoist for changing bodies—lifting one end of a car, or the entire car—removing engines or transmission—holding the chassis while the axle is removed, etc.

4. Blowing out dust, chips and dirt from lathes, drill presses, cushions, upholstery and the like.

5. For operating a kerosene spray engine cleaner, which literally eats off the grease, which can be cleaned in no other way satisfactorily.

6. For supplying air to small sand blast which will clean the old paint off of metal bodies and give the metal a surface which a new paint or enamel will adhere, absolutely preventing checking and scaling of the finish.

7. Small power presses and pneumatic jacks can be operated by compressed air.

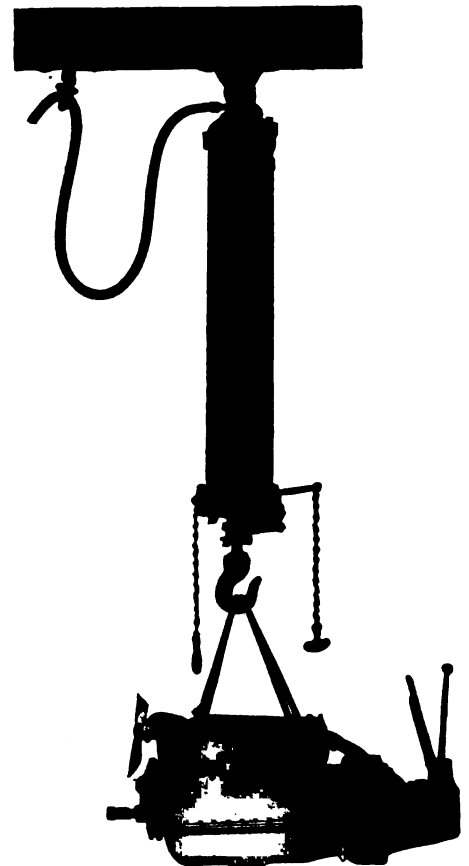
8. A horizontal air hoist cylinder can be adapted to open and close doors.

9. Elevators and dumb-waiters can be operated by compressed air.

10. Oil is often stored under ground and pumped up when used, or is stored overhead and must be pumped up into the storage tank. This can be done by compressed air displacement pumping.

11. Operating small riveting or chipping hammers and air drills.

Other applications could be enumerated, but these are a few of the more prominent ones and go to show that an air compressor can be made to serve the



One Method of Using Air in the Garage.

garage man's interests far in excess of his customer's interests, which a great many consider primarily the principal and only excuse for an air compressor installation.

GARAGE EFFICIENCY will be glad to send to any garage man a copy of a complete pneumatic machinery catalog and give any information that he might desire on any line of pneumatic machinery that is manufactured.

A SUGGESTION.

One of the series of papers by Robert Bland, president of the National Automobile Trade Association, now appearing in the Evanston (Ill.) News-Index, is given on page 10. Read it. Then try out the idea with your home paper. It is time we all took an interest in educating the public.

How the Garage Boys Take to The Efficiency Chart System

It is admitted by all that the "Boss" thinks fast. His mental machinery has a rated velocity of 3,000 r.p.m. Some people who do not like him claim he does not think at all, that he merely jumps to conclusions.

In support of that derogatory opinion they point to the results when the boss adopted the "Efficiency Chart System," which he thought would serve as a check, an inspiration and a tonic on himself and his employees. These detractors venture so far as to assert that the boss adopted the charts without a thorough understanding of the changes they would bring about in the conduct of his business.

He hit upon the happy idea of having the charts reproduced in large white letters on a black background, framed and hung where all could see them. Then he called the boys in and said:

"Boys, them's the rules we are going to follow in this garage, and if you don't live up to them, pack your clothes and get your time."

Personal Efficiency.

Sam, the capable, all-around man in the repair room, studied the chart at noon with the floorman.

"Checked up myself and found chance for improvement," Sam read slowly. "It can't be did," said Sam, thinking of the boss.

"All things are possible, son," replied the floorman.

"Well," said Sam slowly, "if the boss does improve the squirrels will get him sure."

"No. 3 there kinder takes my eye," mused the floorman. "We oughter think out new ways of doing things, and then do 'em."

"The last time I told the boss how to do something," Sam remarked reminiscently, "he shied a monkey-wrench at my head. So I'm going to lay off that one."

"Read something beneficial," read the floorman.

"We're doing that now," said Sam quickly.

"Shut up," said the floorman, "I'm trying to think."

"Controlled my temper," Sam read aloud.

"It's lucky for you that you did," said the floorman, who was still pondering No. 4. "You've got the devil's own temper, an' no mistake about that."

"Eliminated an ungrammatical expression," Sam read cautiously. "Say, Pete, how is that done, anyway? Is that a part of the transmission or does it come

with this newfangled lighting-starting equipment?"

"Must be tied up with the differential," said Pete, safely.

"I'll try to get one out of that car I'm working on now," concluded Sam, "only how am I to know it when I see it?"

"Don't ask me. Take a slant at Seven."

"A, clothes pressed; B, shoes shined; C, face shaved every day." Say, my face won't stand scraping every day. Gets rough and sore. I'll have to renege on that. 'D, hair trimmed,' don't say how often. I get mine trimmed once every six weeks, whether it needs it or not. 'E, hands and nails neat.' Take a slant at them ladylike fingers of mine," and Sam extended his scarred, oil stained paws.

"But we are getting stylish; my, oh my, how stylish we are," broke in the floorman. "We don't wear overalls during our noon hour," and he grinned.

"See that there 'A, Clothes Pressed?' Well, I gave that the double O when I came in this morning. I got my jumpers back there between two boards with a transmission on top of 'em, pressing them into shape."

"Say, if I had you I'd put you on a vaudeville circuit," and the floorman burst into a loud guffaw. "They'll be pressed into shape all right, all right, and if you ever get into them you'll have to drill holes for your legs."

Garage Efficiency Chart.

"Well, there's some sense in this 'Garageman's Business Efficiency Chart' anyway," observed the floorman.

"Securing a new customer is always a good idea, but keeping an old one that pays his bills is almost as good," contributed Sam.

"This place don't always look like it just came out of the box," observed Pete, judiciously, "but there is one thing you can say for the boss: His business methods are clean, even if the place is not always."

"Boss must be wrong," remarked Sam, thoughtfully. "It don't say nothing there about clean business methods. Just says to wash the windows and sweep the floor, which we always do, sometimes. Guess we'd better cut out the clean business and just keep the place clean."

"No, that ain't it," said the floorman; "if you keep the place clean you just naturally must live up to that standard."

"Say, Pete, what is courtesy?" and Sam's eyes traveled back to No. 5.

"Courtesy," replied Pete, thoughtfully, "Is something women used to drop in the

old time. I read a book about George Washington once and every now and then some woman in it dropped courtesy. The book didn't say what it was and I don't 'spose there's any more left."

"What made her drop it?" demanded Sam.

"Just a habit, I guess," replied Pete.

Satisfied Customers.

"Say, that thing about satisfying customers is plumb foolish," Sam declared with conviction. "Nick himself couldn't satisfy some of the customers we have here, let alone this outfit."

"We please as many as the average," said Pete, stoutly. "You see, what they say to us and what they say about us is different things. Most fellows are the same about their garage as they are about their car. It's the best ever to their friends, but if they want to cuss it out private like, that's their privilege."

"But look here," argued Sam. "You get ten off your batting average when you fail to satisfy a customer. That would leave us owing the scorekeeper something at the end of the week."

"Anyway," he continued, "a batting average of .70 ain't nothing to brag about. Seems to me if we are going into this thing we should aim for the Cobb-Speaker-Jackson class. Get up among the .300 hitters."

"Well, running a garage ain't the same as playing baseball," said Pete, with conviction.

"Don't see why the boss wants to wish anything like that on us," grumbled Sam. "We've got enough to do here without studying grammar, running a clothes pressing outfit and monkeying with this courtesy business," and Sam's eyes ranged over to the Personal Efficiency Chart.

"But I done what it says there in No. 8, made a friend, and say! she's a peach. Her father is rich and she don't have to work, but she likes to meet people and just now she's helping a friend out downtown."

"She lives up to all of them things there in No. 7, except she don't have the shave and say, she's got a bunch of hair and it would be a shame to cut it off. She's a great reader, too; reads all the stories a fellow by the name of Chambers writes. As for grammar, she's way up there. Used a lot of words I don't understand."

"Cut it out," admonished Pete, curtly; "that ain't the kind of a friend they mean. They mean someone that will come in here and spend his dough."

"Oh, that's what they want. Well, this ain't no saloon. What do they think our friends are going to do? Come in here and buy us a spark plug?"

The Boss Intervenes.

"What are you fellows gawking at there?" demanded the boss, who had entered unperceived.

"We're just a studying these things

and finding out what they mean," explained Sam, nervously.

"It says here," snapped the boss, pointing out the words: "'Cut out any loss or leak,' so you fellows are docked an hour's pay for loafing, and don't let me catch you at it again."

"But I done one thing," muttered Sam, as he jerked his overalls from between the boards, "I made a friend last night and she sure is one peach."

Now, the only time,
That we worked for you,
Was when we had
Nothing else to do.

We had no other
Jobs in sight,
And we pay full time
Every Saturday night.

When it comes to getting money,
We can't get whipped,
And in a business like this,
Some one is bound to get jipped.

No doubt in your mind,
You believe this is punk,
But we always charge more
When we work on old junk.

When I saw your car
I said, "His time has come,"
And no doubt you think
A fine job was done.

Your lines are very good,
And you showed great wit,
But don't try to hand me
That old bull, honk, honk.

Put it in a spreader,
Where it does no harm,
And hand it to your partner
To smear on his farm.

MORAL.

When you drive around a corner,
Go a little bit slow,
For if you hit the curbing
Some one is bound to get your dough.
A. W. TREVOR GARAGE.
Per A. W. TREVOR.

ATTENTION, THE S. P. C. S.!

The federal trade commission has sent to Congress a preliminary report on the rise in the price of gasoline. It draws no conclusions but presents masses of statistical information. Among the items noted in the press summary are:

Production of crude oil remained virtually stationary; gasoline contents of crude oil decreased; exports of gasoline increased from 188,000,000 gallons in 1913 to 238,500,000 gallons in 1914 and 284,500,000 gallons in 1915; for its 62 percent of the gasoline produced the Standard Oil Company charged about 1 cent a gallon less than the "independents" charged for their 38 percent.

The last item ought to move the Society for the Prevention of Cruelty to Statesmen to do something. Consider the hard lot of the member of Congress with a large constituency of automobile owners. Confronted with angry complaints about the "high price of gas" he is deprived of his old familiar explanation.

He cannot dismiss the complaints with the classic vituperation of the "trust"—the "octopus"—for here is the federal trade commission with its cold-blooded price tables! Truly the way of the statesman who deals in oratory meant only "for Buncombe County" grows harder every day.—*Chicago Herald*.

April 13.

The Poem Alone Was Worth the Money

It is not given every garageman to have a witty, prompt paying, wholly satisfactory customer, but that is the lot of A. W. Trevor, of Rock Island, Ill. Not only is he witty, prompt pay and in other manner satisfactory, but he knows the innermost details of automobile construction, operation and repairs.

The next speaker on the program, ladies and gentlemen, is Mr. R. C. Glenn, than whom there is no more satisfactory patron of any garage. Mr. Glenn:

MOLINE, ILL., Dec. 7, 1915.—A. W. Trevor Garage, Rock Island, Ill. Dear Sir:

Attention, A. W. Trevor.

Enclosed please find check for \$43.98 to balance our account for the following items per invoices:

Nov. 11—Take out front axle and disassemble, 1½ hours.....\$1.31
Looks like it was worth the money.

Nov. 11—Take front steering knuckle apart, test same, straighten axle and set under car, straighten steering knuckle, five hours at 75 cents. 3.75
How long did your man set under car? We'd feel just as well satisfied to have had him in the back seat.

Nov. 10—Get car at Thirtieth Street and Ninth Avenue..... 2.00
Was this a future order, or have you joined the hardshells, and believe things are foreordained.

Nov. 12—Straighten spindle, 1½ hours at 75 cents..... 1.31
I'll bet you are losing money by not having a split second watch.

Nov. 15—Nine feet brake lining.... 6.30

Nov. 15—Put in spindle, line front wheels and reline brakes, six hours at 75 cents..... 4.50
Believe you are getting legitimate profit on brake lining.

Nov. 15—One 1913 R/H steering knuckle, bushel only, express and return charge s. c. o. d..... 4.56
Would rather you had let your man set under the car again for six hours, two minutes and six seconds; that, too, has brought something else to my mind again.

Nov. 16—Line brakes, adjust brakes and put on bracket, nine hours at 75 cents 6.75
Don't know how much of a job this is, but take it for granted it's o. k.

Nov. 17—Line up front wheels, adjust brakes, put in brake lining, 5 hours at 75 cents..... 3.75

What are you doing, running a school of instruction? If you are, for heaven's sake use some other car next time. Brakes were relined November 15, 16 and 17. Adjust brakes November 15, 16 and 17. Put on bracket November 16 and put in bracket November 17. The neophyte ought to be an expert after that.

Nov. 17—Grease cup (how about the grease?)25

Nov. 30—Put new spokes in auto wheel and rivet in fellows (Klockaus bill) 9.50
Corrected bill.

Is this to date? Don't notice any charge for crimp put in fellows, and you did this work, I know. Might be gratis.

Would you rather have the \$43.98 or the car? Might be a good thing to have a post mortem on it, and would let you do it if I wasn't afraid three or four of you, or all would set down under it at once at 75 cents per hour, or may be reline brakes again, as they only last twenty-four hours in a garage.

Must be badly worn out, as you ran it up, or if there was nothing else to do you might put on, or off, or something else, the bracket again.

I never lost any of your dough shooting craps. That was Puss, and he's got a good government position—go to him.

Yours with profound respect for the man that delves in the inwards of an auto and gets enough out of it to wear clean overalls.

If the fellows down at Klockaus are in the habit of using rivets for dessert, think that they should pay for them. If they would not, would use an emetic and recover.

GLENN & TREVOR.
Per R. C. GLENN.

Ladies and Gentlemen, Mr. Trevor:
Rock Island, Ill., Dec. 9, 1915.—Glenn & Trevor, Moline, Ill. Gentlemen.

Attention, Mr. Glenn.

I received your welcome check,
And your wondrous note.
The bill that I sent
Must have gotten your goat.

Your car that we fixed
Was in very bad shape,
So I sent you the bill,
Without any red tape.

You just came across,
Like a little man;
I can always tell
When there is fish in the pan.

Money in the Garage Business If You Know How to Get It Out

"If it were not for the profits we derive from the sale of tires, gasoline, oils and accessories I would close the garage and get a job at a salary. I could make as much money on a salary as I can make storing, washing and repairing cars and would not be required to make any investment or to assume any business responsibility or hazard."

That is the deliberate conclusion of one of Chicago's most successful garage operators.

Under competitive conditions if the average garage operator can make a living by storing, washing and repairing cars he is doing as well as the average. Below this average are the incompetent operators, above it are the garagemen who have become merchants.

Where the Profits Lie.

Garagemen buy space at wholesale and sell it at retail. Garage buildings bring higher rents than other classes of structures. In Chicago, for example, buildings costing \$5,000 to \$7,500 on land worth \$2,000 to \$3,000 command a monthly rental of \$200 on a five to ten year lease, the last year's rent being payable in advance and the remainder from month to month. If the garage is full up at all times the operator may realize a profit of 50 to 100 per cent on storage. If the garage works at less than capacity the loss from "vacant" and from poor pay customers may wipe out the margin of profit from storage. How may that loss be made good?

Garagemen pay rent in advance. If they are a bit keen about collections they may get it back in 40 to 60 days. The remainder of the profit must come from washing, repairs and the sale of oil and gas, with the profit from the sale of such accessories and supplies as the garageman fancies he can sell.

The ordinary operator is not very keen on handling accessories and supplies. He knows, from sad experience, that it is easier to put in a stock of accessories than it is to sell the goods. He knows, also, that there are a world of concerns trying their very hardest to capture the supply and accessory trade.

There is not one of the thousands trying for this trade that would not give a right eye for an opportunity to get this business equal to that of the garage owner.

The garageman is "next" to this business without realizing that fact. He has opportunities to develop trade and to get business possessed by no one else. He is in daily contact with the "prospect."

How to Get the Trade.

There is no royal road to business. There is no set formula that can be adopted that automatically will capture the trade of your customers.

Keeping the garage in good order, keeping posted on what is coming onto the market that is worth while, refusing to be stampeded by the new untried devices that are announced daily, refusing to become mentally constipated, maintain-

individual problem which you must solve.

Take all the preaching and sermons you get with a grain of salt. The purpose of a sermon is to induce you to think out your own salvation. Failing in that the sermon does not "get across."

How to Start.

Take one line at a time and develop a demand for it. The garageman must use common sense in talking supplies and accessories.

It is time thrown away to try to sell a man who is in a hurry anything except the one thing he thinks he must have immediately.

A good method and one that has been employed successfully by many garagemen is to watch the cars, note what they lack and find or create an opportunity to call attention to the needs at convenient times.

Garage Efficiency and the Manufacturer Will Help.

Realizing that the big money lies in the merchandising end of the business, GARAGE EFFICIENCY and manufacturers catering to the garage trade are developing methods of capturing the business.

Many manufacturers supply the garagemen with literature and window displays that are invaluable aids to securing business. This selling aid is furnished without cost to the dealer who has sufficient enterprise to put in a stock commensurate with his needs and initiative to let that fact be known.

GARAGE EFFICIENCY will aid by assisting you to prepare and print literature of your own, if needed. The customer is not particular who gets his money. He would as leave pay you twenty dimes for something he needs as pay someone else \$2. It is all a question of creating an appetite for the things you offer for sale.

Begin With Seat Covers.

Why not begin with something in which there is a good profit, for which there is a big outlet?

Seat Covers! What percentage of the cars you store are provided with seat covers and kicker pads? Five, ten, fifteen, twenty per cent.

Statistics which are more or less reliable show that about one-fifth of the passenger cars in service have a set of seat covers.

The seat covers cost a fraction of one per cent to as much as two per cent of the cost of the car. They improve the appearance of a new car at least ten per cent.

THE HUB
Henry C. Lytton & Sons
N. E. Cor. State and Jackson

Motor Carnival
Demonstration of the
Shanhouse MOTOR SUIT



An indispensable part of every motorist's outfit. This one-piece khaki overgarment can instantly be slipped over your clothes whenever the machine needs attention.

The garment allows freedom of action, it is durably constructed, and easily washed. Demonstration today and tomorrow. Garments on sale at \$2.

Goodrich Diamond Auto Tires
20% Off 1916 Prices
Demonstration and Sale of All Auto Accessories
F.M. Floor.

One of Chicago's Foremost Clothing Houses Is Handling Motor Suits. There is a Demand. Are You Equipped to Supply It?

ing cordial relations with your patrons, refraining from boring them with tiresome solicitations, doing all of these things naturally and as a matter of course eventually will result in interesting your customer in the stocks and the service you offer.

Your problem of selling things is an

The appearance of an old car is bettered manyfold. They minister to the common demand for "good looks," for comfort, for convenience and are a source of very material saving.

Talk the beauty of seat covers to the well-to-do.

Talk the economy of seat covers to your other customers.

Both talks will sink home and produce business for you, for both are absolutely true.

Seat covers improve the appearance of any car in service and prolong the life of the cushions. A cushion covered used car when placed on the market will bring much more than one used the same length of time without seat covers. The difference between the sale value of such cars is many times the original cost of the covers.

GARAGE EFFICIENCY is in touch with the leading manufacturers, and if you desire to develop a business that will bring you several times the profit you derive from the sale of gasoline and oils, write us for information.

You are not required to invest in a stock. The covers are made to order and you buy them after they have been sold for cash or on terms, and get your profit immediately.

This is a nice, clean line of business that is less than one-fifth developed.

Which would you rather do: Sell one set of seat covers or buy, store and deliver 500 gallons of gasoline? It's up to you. Get busy TODAY.

Sell More Bumpers.

Count the cars in your garage that have been equipped with bumpers. Deduct the amount from the total number of cars in the garage and you will have before you for immediate attention a list of likely prospects.

An investment in a bumper is a premium on insurance. A bumper gives a car an improved appearance.

Put a bumper on display with a sign showing the price affixed to your customer's car.

Bump the intelligence of your customers occasionally with a neat folder or a vocal suggestion that one smashed lamp, one crumpled fender, one stove-in radiator costs more than several bumpers. Right now, when the cars are in service, is the time to get this business and you are the man who should get it.

Selling Motor Suits.

In starting this work keep to the products of proven merit for which there is a general demand.

If there is a demand for fancy fixtures or fittings go out of your way to provide them, but do not stock them until you have built up a trade that has confidence in your judgment and relies on your recommendations.

Every car owner should have some

Pertinent Advice to Accessory Dealers

From every indication this is going to be the banner year for the garage man and dealer, and you should bend every effort to take care of every dollar's worth of business that comes your way.

To do this it is necessary to be "prepared"—go over your stocks carefully, see on what material and supplies you are "short"; see that your shop is adequately equipped with the proper tools to handle any job that comes in; see that you have a good assortment of salable accessories, such as:

Horns, head-lights, side-lights, tail-lights, light bulbs, flash-lights, bumpers, tool boxes, tire carriers, tire covers, hook-on boots, blow-out patches, reliners, tube patches, mirrors, Weed chains, spark plugs, fuses, dry cells, tire pumps, tire gauges, tire tools, wrenches, pliers, polishes, chamois, sponges, soap, dusters and dozens of other items that can be sold every day in the week.

When a customer drives up to get a little gas and oil, don't be content to take his money for that alone. See if he has a spare tire and extra tubes; blow-out patches and tube patches for an emergency. If he has no bumper on his car, remind him that one might mean the saving of his lights, fenders, or even the radiator; an extra spark plug or two always comes in handy at times—in fact there are a hundred and one ways of making additional sales if you will but watch for them—and don't forget if these items seem trifling beside the sale of a car, that at least the margin of profit is BIG and considering the small investment are really worth while—are the kind that make the right kind of showing on the profit-paying side of the ledger at the end of the year.

Take your catalog NOW, while it is fresh in your mind, leaf through it carefully, note the articles you should have in stock, list them on the enclosed order blank and mail to us today. I'll see to it personally that your order will be given prompt and careful attention, and we'll work together and see if we can't make this the most profitable year you have ever had.

kind of garment to protect his clothes, something to slip on to keep off the grease and dirt.

The Shanhouse Motorsuit was designed especially to meet the needs of the motorist. It is a one-piece garment that may be slipped on or off in a second and protects the wearer from head to foot.

It should be relatively easy for the garageman to sell a Shanhouse Motorsuit to every customer if not to the owner of every car that comes along and stops for gaseous refreshments.

This concern is furnishing dealers with selling assistance of an especially attractive character. Cards and folder to be enclosed with monthly bills and other correspondence are furnished the dealer free.

There is nothing in automobile accessories that is more useful or that can be sold so readily as a Shanhouse Motorsuit. There is an excellent profit in this business for the dealer.

Tire Repair Service.

Long, long ago master merchants learned that to load up the dealer was the very poorest business policy. The dealer's store is not the final destination;

the dealer is not the "ultimate" consumer.

Acting on that information, the progressive manufacturer is creating a demand for his products and supplying a demand from the stocks the dealer carries. The active and hearty co-operation of the dealer is solicited.

The aid to more patronage supplied by the C. A. Shaley Company, Waupun, Wis., furnishes a case in point. That company is supplying garagemen who are using Shaler equipment with a "Silent Salesman." This is an aid to selling the small vulcanizers which many car owners carry with them while touring or keep in their private garage at home.

The "Silent Salesman" consists of a metal background, lithographed in colors, to show a representation of an automobile tire upon which a regular stock vulcanizer is clamped exactly as if in operation. This novel method of illustrating the purpose of the article is bound to attract a great deal of attention from motorists. This display stand is furnished free to dealers carrying the Shaler line.

The "Auto-Kamp" Trailer.

This looks like the very liveliest kind of a live proposition for live dealers.

The "Auto-Kamp" Trailer is a hotel on wheels to be attached to and carried by the touring motorist.

Possibly "Carry Your Hotel With You" will be the slogan in the near future. The cost of this trailer is so very low that any tourist can afford to use it.

Also, the trailer is known as "A Summer Home on Wheels" that carried an appeal which should prove irresistible to every wandering motorist who seeks the out-of-doors for recreation and relief from the cities.

The method of distribution calls for one very live dealer in every town and that one dealer will be given exclusive territorial rights.

The trailer affords sleeping, dining-room and kitchen facilities and all appointments are furnished with the vehicle.

BUSINESS COTTER-KEYS.

Jessie B. Ferris,

Secretary-Treasurer, Ferris Motor & Machine Co., Inc., 815 E. Pike St., Seattle, Wash.

Did you ever liken your business to an automobile and think of the hundreds of business cotter-keys that must be used to make it run smoothly, or prove a success?

I never attend to a detail of our business that it does not occur to me that I have slipped in a cotter-key and that a courteous word, a communication attended to promptly, a phone call taken intelligently, are cotters that help hold the parts of our big machine together, and aid in the keeping of our trade and the up-building of our business.

Some of the most important cotters, which every successful business man or woman uses, are: *Memory*—You must remember your customer, remember his whims and the whims of his car. *Regard for your spoken word* is one of the most important cotters and one which is so easily left out. When either an employe or a customer is told a thing remember that he has no way of knowing what you mean except by your word and see that he understands what you are trying to impress him with; prevent trouble at the beginning of a deal by having a complete and thorough understanding.

Courtesy, both to your employes and to your customers; it's a good strong cotter. *Attention to detail*; little cotters used every minute of the day.

But the most important cotter-key in your business is *Personality*. To what extent any business or enterprise is successful depends primarily upon Personal-

ity. There was never a satisfactory job turned out of our shop that did not have every little cotter in its place. There was never a successful business carried on that did not have a strong personality reaching out and permeating into every department and there was never a strong personality without system.

Co-operation with your men, a working together for the best good of all concerned—mechanic, foreman, manager and customer—then system reaches its highest function and your great business machine runs smoothly, your motor doesn't miss, she idles, your clutch doesn't grab, nor your magneto refuse to spark.

There are two units of one big machine in every automobile repair shop, the actual working or service department and the business head or clerical department. We might liken the mechanical department to the motor; master mechanics may be employed to overhaul it, it may be tested and every part found to be in the best possible running condition. The workmanship may be pronounced perfect, but it cannot reach its real usefulness or highest efficiency unless it is coupled up with the other unit, the ignition, or in other words, the business or clerical department. The ignition may be in as fine a condition as the motor, each magnet recharged and the wiring traced out and found perfect. Co-operation between the two departments, the very best grade of cotters obtainable, and we have an assembled machine that means success.

Enthusiasm is the best lubricating oil on the market. Enthusiasm needs only direction to turn it into success and the greatest successes have been due to concentration of purpose, energy and action.

We are pioneering the automobile business and success or failure depends entirely on whether or not we put in our cotter-keys.—*Motor Trade Bulletin*.

GOODRICH SUPPLIES FREE TOURING INFORMATION.

"The Goodrich Touring Bureau was established for the purpose of giving free aid and information to motorists on contemplated tours," says an official of The B. F. Goodrich Company of Akron, Ohio.

"It is the most successful organization of the kind ever inaugurated and no other, whether public or private service, can approach it in efficiency and scope.

"We help the motorist plan his trip from start to finish; supply him with accurate information as to distances, crossings, bridges, repair shops, etc., and, in

fact, make it as easy for him as if he had already covered the route.

"Motorists have not been slow to avail themselves of this opportunity, and the deluge of letters and cards which daily pours in speaks eloquently of its growing popularity.

"While road logs of different tours along highways connecting large centers of population in both the United States and Canada are available at any time, we have compiled the information of a great many of the more popular routes in neatly-bound booklets, giving accurate road maps, etc.

"Every motorist, whatever his make of tires, is welcome to this service. There is no charge whatever for advice, information or route books. We ask of all motorists that they let us help plan their next tour by applying to Goodrich dealers, Goodrich branches or to the factory, Akron, Ohio, for whatever assistance they wish.

CREDIT INFORMATION.

SAN FRANCISCO, CAL., May 6.—Editor GARAGE EFFICIENCY: Our association took up something at its last meeting which might interest the garagemen throughout the country, especially in the larger cities.

In San Francisco the large business concerns dealing with the retail public have what is called the Retailers' Credit Association. They employ an expert on credits who keeps his information at their disposal at all times. This organization has, I think, 200,000 names on file.

Our association has become a subscriber to this information, each member paying individually the monthly charge for the information this bureau is able to give regarding customers' credits.

This system prevents the garageman from extending credit to some one who is well known among other lines of business as an undesirable customer.

It is possible for this organization to cover all classes of people in a way that our association could not think of doing. Also, the members, paying separately for this service, feel that to get their money's worth they must make inquiries.

I believe this is a much better way of handling credit information than for the garage associations to attempt to do it themselves.

The credit association is not, at the present time, doing any collecting at all, our attorney handling such matters, as before.

A. D'ETEL,

Secretary Garage Owners' Protective Association of San Francisco.

(This is carried at the bottom of the letterhead of The Ohio Automobile Trade Association, of Columbus.)

CONVENTION-October 18-19, 1916, Hartman Hotel, Columbus, O.

1000 Members Present

Are You With Us?

Affiliated with The National Automobile Trade Association.

Garage Accounting

[A Monthly Feature Prepared by Horace Edward Hollister, Rockford, Ill.]

CHART OF GARAGE ACCOUNTING SYSTEM.

The accompanying chart, reproduced by permission of the Garage Systems Company from the writer's book Practical Garage Accounting, illustrates particularly the garage accounting system therein described; but in general any good accounting system follows the same lines. It shows the course followed by the different classifications of entries from the original memoranda of transactions through the journals into the several ledgers and the daily and monthly financial statements. The squares representing the different sections of the combination journal might in another system, represent separate books. It will be noted, however, that the record of all transactions are entered in some one of the sections of the journal, and that no entries are made in the General Ledger except from these six divisions of the journal. This is also true of the Accounts Receivable and Accounts Payable ledgers, which should at all times be in balance with the Controlling accounts in the General Ledger. The Perpetual Inventory or Stock record is a more independent record, being balanced with the General ledger only at the dates of physical inventories.

Complete Balance Sheet.

It will be noted that the General ledger

is the central book of account, in which all operations of the business of whatever nature are entered. In a properly organized accounting system it is possible, at the end of each month, to take off a complete Balance Sheet or exhibit of the company's standing, from the General ledger alone; all other records, such as of Cash, Accounts Receivable, Accounts Payable and Stock Record, being represented in the General ledger by controlling accounts.

The little squares at the top of the chart represent the original memoranda of all possible garage transactions. All of the thirteen illustrated are not always used, and sometimes other forms of original memoranda are used. But the equivalent of most of them must appear in every garage accounting system that deserves the name.

Follow the lines leading from each square. The first two represent all Cash Received, whether checks from customers, cash register record or other memoranda showing the receipt of cash. These may be entered as received, or all together once a day, in the Cash Received journal. Additionally the cash register tape or other record of cash sales must be distributed in the Sales Journal to the various sales departments concerned.

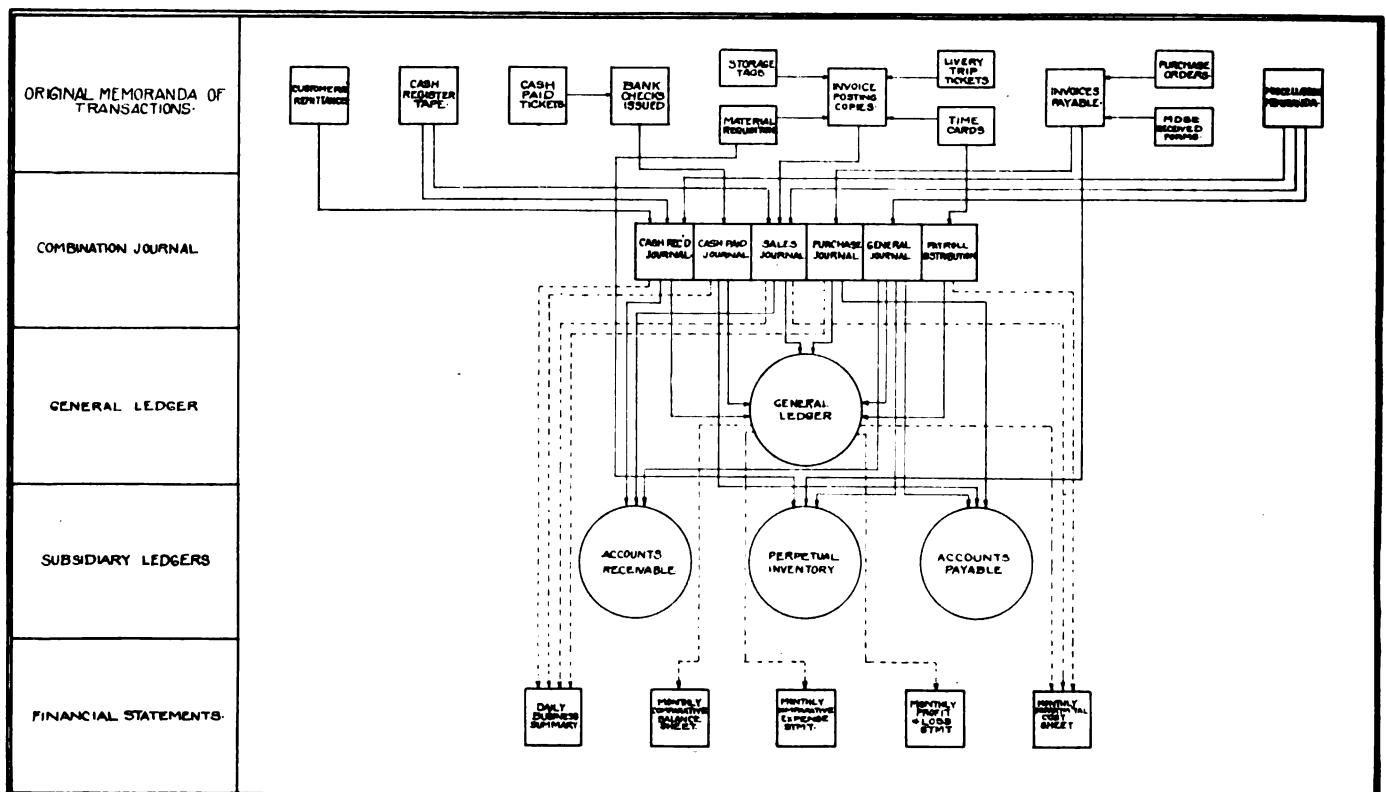
The next two squares represent Cash Paid—either in money or checks. By

means of the Imprest Fund system all petty cash disbursements are represented by Imprest Fund reimbursing checks, and all checks are entered in the Cash Paid Journal or columnar check register, and there directly distributed to the proper General ledger accounts.

Garage Sales Record.

The next five squares represent Charge Sales records. The form in which these originally appear varies widely; and the exact course the record follows depends on the billing system in use. The chart shows the course followed when a duplicate or triplicate typewriter billing form is used. All sales are distributed in the Sales journal; at the end of the month the totals of its columns show total sales for each department separately. The Stock Record or Perpetual Inventory is posted from such of this group of memoranda as represent merchandise sales; the Payroll Distribution Journal from memoranda of labor performed.

The fourth group, containing three units, represent the original records of purchases on account. If purchase orders and merchandise received check slips are used they should be attached to the invoice covering the purchase, and entered in the Purchase Journal. From these invoices the Stock Record entries are also to be made.



Applying the Chart Idea to Garage Accounting.

General Ledger Entries.

Finally come the miscellaneous entries, mostly General ledger adjustments, which cannot be classified under any of the preceding headings. Included among these are miscellaneous cash received memoranda, such as advice of credit by the bank of loans or collections, which are to be entered in the Cash Received Journal; memoranda of credits to customers, which may be entered in red ink in the Sales Journal; and adjusting entries, which must be made through the General Journal.

The postings from each journal are indicated by the lines running from the Journal squares to the circles representing the General ledger and subsidiary ledgers. Two-thirds to nine-tenths of these entries are posted in monthly totals to the General ledger, the rest from the miscellaneous columns, item by item. The items affecting Accounts Receivable and Accounts Payable are posted to the individual accounts concerned, and if the work is correctly done, it is proved by the controlling accounts in the General Ledger. The detailed Stock Record, in conjunction with the General ledger stock accounts, provides a check on Stock room leakages; and the balancing of each step of the work, one by one, results in the final balance of the General ledger being quickly and easily arrived at.

Moreover, this arrangement of journals and ledger records permits an easy and rapid preparation of daily, monthly and yearly statements of operations, exhibiting all the information required by the proprietor or manager for the intelligent and efficient management and operation of the business; which is the real object of every accounting system.

GOOD AND BAD JOURNAL FORMS.

The Managing Editor writes me:

"The thing that garage men seem to want may not exist. I do not see how they can keep books without giving the work some time and thought. Possibly there is a way. You might take that for a text and preach a sermon on it.

"While time and thought are required just as the same elements are demanded in conducting other branches of the business, they can be made to pay dividends."

The Managing Editor is right—he always is (of course I am obliged to say that); but these statements are more than right. They are brilliant; they are "apples of gold in pitchers of silver." There may be short-cuts to fame, to fortune, to success for some, but there is no royal road to knowledge.

When the amateur accountant starts out to "simplify" accounting, his point of attack is usually the journal. He finds that in a business of any considerable size a

Cash book, perhaps, two, are used; there is a journal, often an invoice register or purchase journal, a sales distribution book; perhaps an expense distribution book; and sometimes others. The brilliant idea strikes him, Why not "simplify" the matter and put all this in one book? No sooner thought than attempted—and in the effort some extraordinary freaks have been involved and placed on the market.

All in One Book.

The writer has in mind one such accounting monstrosity, gotten up by an automobile manufacturer for the use of its agents. The owner exhibited it with manifest pride, saying "everything in one book"; and so it was, and what a book! When opened it extended over nearly four feet of desk. It had over 40 columns for entries, all to be explained in a single column of detail. To enter the day's business the bookkeeper had to do as much walking back and forth as would be required in playing several games of golf; and to make sure of getting the entry in the right column and on the right line it was almost necessary to run a surveyor's transit across the page each time. All entries, cash received and cash paid, invoices, sales, purchases, adjustments, expense, must be explained in the single detail column, and both the debit and credit amount entered in the proper column to right and left, and all the rest of the line, running clear across the four feet or 40-odd columns of the page, was wasted. This means that approximately 90 per cent of the stationery purchased was a dead loss.

Another form of freak journal is divided into two sections, the expenditure account columns appearing on one form and the income accounts on another. This eliminates one disadvantage of the other book, namely its excessive size and consequent awkwardness, and is not so wasteful of stationery; but is more complicated and confusing and greatly increases the amount of detail posting necessary.

Advantages Apparent, Not Real.

Absolutely the only real advantage of either of these forms of journal is the fact that the double-entry principle is demonstrated in every entry, just as in the school-book sets of accounts; but this nearly doubles the necessary amount of work; and to maintain that such awkward procedure is necessary in order to make

Learn the Automobile Business

We teach you construction, repairing and driving in 6 to 8 weeks. Special instruction in Acetylene Welding, Knight Engines, Vulcanizing, Electric Starters, Automobile Salesmanship. Greer graduates always in demand. Earn \$150 per month and up.

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Booklet "How to Succeed in the Automobile Business"—FREE. Write today.

GREER COLLEGE OF MOTORING

1519 S. Wabash Ave.

Chicago, Ill.

the matter simple enough for universal use among garage men, is an insult to the intelligence of those engaged in the business. If the principle of double entry bookkeeping, namely, that every ledger entry involves a debit and a credit, and the amount thereof must be entered on both sides of the ledger so that it shall remain in balance, is grasped at all, then surely it should not be difficult for anyone who can understand that principle to

CLASSIFIED ADVERTISEMENTS.

WANTED—PORTABLE WHEEL TANK.

Wanted immediately, a portable gasoline wheel tank. This must be in good working condition. State capacity and price.

FASHION AUTO STATION,
740 East 51st St., Chicago.

STARTING AND LIGHTING EQUIPMENT.

Magnetos, Cols., Lighting Generators, Starting Motors, Magnetizers. We manufacture, sell and repair. Prices right and service the best.

H. B. WEBER & CO.,
1336 Michigan Avenue, Chicago, Ill.

PROTECT YOUR IDEAS.

Many of the best selling accessories and supplies were invented by garage and repair men. Protect the ideas you develop. A patent, a trade-mark or a copyright may mean the difference between affluence and poverty in later years.

CHARLES TURNER BROWN,
127 South Dearborn Street, Chicago, Ill.

REPAIRS AND REBUILDING.

If a job comes in you cannot handle, if you need aid at any time send it to me. No job too small or too large to receive prompt attention. Try me once and you will become a permanent customer.

CHARLES BALLARD AUTO REPAIR SHOP,
5413 Cottage Grove Avenue (in rear)
Chicago, Ill.

CHICAGO GARAGE FOR SALE.

An established business, including high class garage and motor livery is now offered for the first time. The business is located in a fashionable south side Chicago district.

Garage has capacity of 60 cars and is doing a splendid business. Appointments are of the very best. The closest investigation is invited.

The business must be sold for the owner is leaving the city.

Price for immediate sale, \$10,000.
Address W. G. I. Care Garage Efficiency.

PARTNER WANTED

With \$2,500. Can secure a half interest in a good paying business that has been established five years. A man with office experience and ability to take care of the books preferred. It is the only business of its kind in a very large city handling a product that every garage man and car owner must have. Address H. K. F., care Garage Efficiency.

recognize the fact that if fifty items in the journal are each one separately entered on the debit side of the ledger, and then the fifty items are added together and the total thereof entered on the credit side in another account, the same thing has been accomplished as would have been accomplished had each of the fifty items been entered separately in the same ledger account in which their total was entered. In this idea of so dividing the journal that the largest part of the posting to the general ledger shall be made in monthly totals instead of item by item, is the greatest possible time-saver known, in both journalizing and posting.

Wasting Time and Stationery.

Someone may inquire, does not the columnar journal you first described accomplish this very purpose? Are not the totals of its 40-odd columns posted each month to the ledger, and are not the majority of items taken care of in this way and only a few in the miscellaneous columns must be posted item by item? We reply, true, but at what a tremendous expense of stationery and time. Time in the double entry of each item, time in locating the right column, and time in adding innumerable columns on the many pages necessarily used for the entries scattered over page after page of bare white space.

The journal method that eliminates the objections to both the above forms of

journal is to classify the entries and use a different page or a different book for each classification. Thus all cash received is entered on one page, and requires but three or four columns for its proper distribution; there being but two usual sources of cash received, namely, Cash Sales and Accounts Receivable, that is, customers' accounts. The miscellaneous column and the total column, with a discount column if discounts are allowed for cash, are all the additional columns that are needed. There is no time lost in finding the proper column and no space lost because every line is used for a cash received entry.

Each item of cash received from customers on account, is posted to the proper Accounts Receivable ledger account; each item of miscellaneous receipts in the General Ledger Sundry column is posted to the proper General ledger account; the total of the Accounts Receivable column posted to the credit of Accounts Receivable Controlling account in the General ledger at the end of the month; the total of the Cash Sales column to the credit of Sales account, and the grand total of the Total column to the debit of Cash account; and that is all there is to it. The same principle is applied in recording purchases on account, cash paid, charge sales, and some of the general journal entries. The bookkeeper knows exactly where each classification of entries should be en-

tered, the work and confusion is reduced to a minimum, and it certainly is not difficult to understand the principle that in every case, when the debit or credit is made item by item, the contra-entry goes into the ledger in the totals of columns at the end of the month.

The one-book proposition *sounds* good; at first sight it *seems* to simplify the work; but upon examination it will be found to be basically unsound and deceptive. It is much simpler, quicker and easier to have six books, or six sections in one, two or three binders, for the six natural divisions or classifications of journal entries, viz.:

Cash Received,
Cash Paid,
Purchases on Account,
Sales on Account,
Payroll,
Adjustments.

HORACE EDWARD HOLLISTER.

NOW IT'S SULPHURIC ACID TO DISPLACE GASOLINE.

ELMIRA, N. Y., April 24.—Ed Lewis, a local inventor, says he can make a motor perform the same function as with gasoline with an ounce of sulphuric acid to each gallon of water.

The acid can be purchased for less than a cent an ounce. Lewis says the hydrogen gas generated by a battery current

Just purchased, a carload of rims, consisting of Firestone, Stanweld, Continental, United, Marsh, Kelsey, Booth, Gilbert, Detroit, Goodrich and Goodyear.

We will allow Garagemen and Accessory Dealers
25 per cent discount on all the above makes
purchased during the month of May.

We apply demountable rims to any make of car. Get our prices before placing orders. All work guaranteed.

W. P. KASTNER

2125 South Michigan Avenue
Phone Calumet 2020

Chicago, Ill.

would show a higher test than the best gasoline on the market.

He would equip the regular gasoline tank with two electrodes, one positive and the other negative. These, connected with a storage battery, which generate hydrogen gas, which, Mr. Lewis says, will pass through any carburetor into the motor as effectively as gasoline.

An open air vent in the tank would give an outlet for too high pressure of gas and backfire would be quenched by the water.

ALL-IN-ONE VULCANIZER.

Tire repairing and retreading work is growing in volume very fast. It would seem there is an almost perceptible gain overnight. In consequence facilities for handling the work in the most economical way are a necessity in every garage and repair shop.

Vanderpool Company, Springfield, Ohio, are putting on the market a two-cavity, two-retreading combination vulcanizer whose economy of operation should appeal to every one interested in this work.

This is known as the "All-in-One Vulcanizer," because it repairs all sizes 3 to 5 inches and retreads the same sizes, handling both casings and tubes.

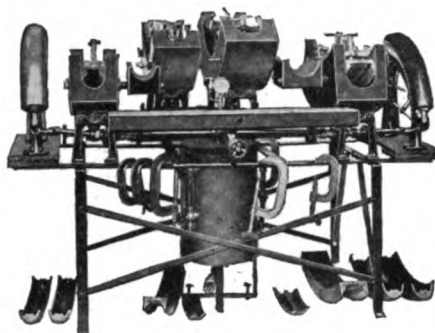
A description follows:

One cavity, 18-inch, 3 and 3½ section work, 1 pair each clincher and straight side bead moulds.

One cavity, 20-inch, for 4¼ and 5 section work, 1 pair each clincher and straight side bead moulds.

One retreading, or double treading mould, for 3 and 3½ tires, ½ circle length and cores.

One retreading, or double treading



The Vanderpool All In One Vulcanizer.

mould, for 4-4½ and 5 tires, ½ circle length and cores.

One 3-foot tube plate, 1 each 3-3½, 4-4½ and 5 moulds for small tread repairs, 8 inches long, pads and clamps.

One each inside vulcanizer (3-3½) (4-4½ and 5) with screw draw bar.

Flue and coil type combination. Great fuel and time saver.

Steam the part you need only. See valves.

The Vanderpool Company has a branch establishment at 1044 S. Main street, Los Angeles, Cal.

NATIONAL ELECTRIC MEETING.

The annual meeting of the National Electric Light Association, with which is now identified, as a section, the Electric Vehicle Association, will be held at the Congress hotel, Chicago, May 22 to 26 inclusive.

Some extremely important matters affecting the future of the electric vehicle and the electric garage will come up for consideration at this meeting. Garagemen handling electric vehicles are urgently invited to attend.

BUSINESS ALMOST TOO GOOD.

A report by W. B. Neff, general sales manager of the Automobile Supply, 1351 South Michigan Avenue, Chicago, shows the direction of the trade winds in the automobile field.

The company is specializing in Klaxon horns and K. W. ignition goods, handling more of these than any other distributor. The business was established in 1900 and is one of the oldest and most substantial in the city. A force of eighteen men is carried on the road.

This company has wisely provided for the future, having put in about twice as much stock as ordinarily is carried. Prices of all manner of supplies and automobile goods are high and very few manufacturers are accepting business for immediate shipment.

Profitable Repair Work

IMPERIAL WELDING CUTTING EQUIPMENT

Combines
Welding
—Cutting

—Decarbonizing—all in one safe, efficient and economical outfit. WELDS broken parts, cracked cylinders, crank shafts, transmission cases, frames, axles, and everything in metal quickly and permanently. CUTS all kinds of steel and wrought iron. DECARBONIZES—quickly and effectively removes all traces of carbon from gas engine cylinders. Pays for itself in a remarkably short time.

Every garage should be equipped to handle profitable repair work this season. A relatively small investment in one of our outfits will give you exceedingly large returns and at the same time gives you an equipment that is unequalled in safety, economy and efficiency.

Practical mechanics grasp the operation of the process quickly, and with a little practice soon become efficient welders. Do not permit the most profitable work to go elsewhere—equip now—you will never regret it—particularly if you select an Imperial Outfit.

FREE BOOK. Our new illustrated catalog shows work actual done, gives cost of operation and other valuable data. Write for your copy today.

Imperial Brass Mfg. Company

1217 W. Harrison Street

CHICAGO, ILL.



Association Intelligence

CHICAGO MONTHLY MEETING.

After disposing of routine business, President Halbert, at the regular monthly meeting of the members of the Chicago Garage Owners' Association, made a statement that should go far toward increasing the interest in the work that organization has undertaken and is carrying out.

"Our organization today is in better shape than it ever has been," he said. "We have a good standing with the city and are now in shape to do things."

"There are more than 400 garages in this city and by next January we should have 300 of them with us. If we all will put our shoulders to the wheels, talk to our next door neighbors and to some that may not be so close, we will get the membership we want. We have something of tangible value to offer our members. Do not overlook that fact when talking the association."

Value of Membership Cards.

A membership card in the Chicago Garage Owners' Association is worth a great deal more than \$2 a month if the garageman is doing any repairing or buying any parts at all. There are a few companies that will give any garageman a discount and some of them that will give anyone that comes in a discount. Many of the

car manufacturers will not give discounts to garagemen unless they are agents or members of the Chicago association.

Harry Salvat submitted a preliminary report to be read before the Electrical Vehicle Section of the E. L. A. at the annual meeting to be held in Chicago May 22 to 26. This was read and discussed carefully, and Mr. Salvat was authorized to get such assistance as he needed and complete his work.

A petition protesting against the high price of gasoline was read and adopted. The members were given copies with instructions to secure the signatures of their customers, the petitions to be forwarded to Washington when signed.

Too Many New Garages.

Robert Bland, of Evanston, Ill., called attention to the great number of new garages going up and to the fact that the field is becoming overcrowded. He said the average real estate man thought garage property was about the very best form of investment and "from the rents some of the boys are paying I believe he is right." He pointed out that the garage would not yield a profit that justifies the high rental and with every new competitor for business it became more difficult to make a profit, as many of the

new aspirants for business knew very little about automobiles or business either.

In Evanston four new garages have been built this year and two more are going up. He suggested it would be a good idea to talk the subject over with customers and to tell them, so in turn they could tell their friends, that the field is supplied.

"These new garages are going to cut in on you," he said. "Many real estate men are getting the wrong idea in their heads. They are putting up garages and some one who does not understand the garage business is investing his savings in rent. In the end it will prove a losing investment for the real estate man and also for the garagemen of the city, and I do not mean that it merely will cost these other fellows money; it will cost you money."

Short Measure.

President Halbert said the association was endeavoring to have an inspector appointed to seal the gasoline tanks of the city of Chicago. He said some of the filling stations and some of the dealers are giving 4½ gallons of gasoline for five and getting away with it.

Co-operation.

H. S. Gilbert, of the Garage Employ-

Empire Red Tires

Perhaps you have heard some of the talk about EMPIRE RED RUBBER TIRES that is going the rounds of motor circles; and perhaps you are wondering how the color has anything to do with the difference in miles and wear and tear. *Listen!* Just about fifty years ago down Hampton Roads way, the north and the south pulled off a little naval side show between the Monitor and the Merrimac, the first iron-clad ships of war. The naval folks laughed at both of them—and now look at the world's navies.

The RED in Empire Red Rubber Tires is the biggest step ahead in the preparation of rubber for tires that the tire industry has seen in recent years.

The RED in Empire Red Rubber Tires stands for NEW rubber—new live rubber, with all the bounce left in. It means all new rubber, no old shoes or junk.

The RED is the result of a new process of vulcanization that keeps Empire Red Rubber Tires always young. They will not deteriorate standing still.

EMPIRE RED RUBBER TIRES deliver the maximum number of miles in roadability. They have made records that are astonishing and these records occur with persistent regularity.

Use Empire Red Automobile Tires—the satisfactory tires. Sell Empire Red Automobile Tires—the satisfactory tires. They will give you satisfaction.

Empire Rubber & Tire Co.

1627 S. Michigan Ave., CHICAGO

Factories: Trenton, New Jersey

We Grind Cylinders

By specializing, we make ridiculously low prices on regrinding cylinders.

Our prices include new pistons and rings. Work neatly and promptly done and absolutely guaranteed.

Write for Particulars

ALLEN & CURTISS CO.
MISHAWAKA, IND.

KENNEDY Auto Storage Covers

furnish efficient protection for cars in dead storage. They are made of strong, heavy paper, properly reinforced, and in standard sizes to fit any car.

Made only by

The Kennedy Car Liner & Bag Co.
SHELBYVILLE, IND.

ment Bureau, asked for closer co-operation on the part of members of the organization. He said that only by and through co-operation could he serve the members as they are entitled to be served.

A motion was adopted instructing members to request employes to register with the Garage Employment Bureau and in the event men are sent out who do not understand the work to which they are assigned to report such cases to Mr. Gilbert.

PROGRESS IN OHIO.

Nine new concerns were admitted to membership in the Stark County Automobile Trade Association at a meeting held in Massillon April 23. Thirty-five members were present. Vice-president C. W. Wegner presided in the absence of President A. H. Wilson. A. J. Peebles, state secretary, was present to help the work along.

A preliminary meeting of the garagemen of Wayne county was held at Wooster late in April. The object is to organize the Wayne Country Automobile Trade Association. Steps are being taken, also, to effect organizations in Medina, Lorain and Erie, with headquarters at Medina, Elyria and Sandusky, respectively.

The Toledo Automobile Trade Association has taken steps to join the State and National organizations. The name possibly will be changed to the "Lucas County

Automobile Trade Association." The officers are: H. S. Wilkinson, president; W. B. Landman, vice-president; V. G. Kibby, secretary; C. L. Stutevant, treasurer.

Progress is reported in Cincinnati. A meeting was held at the Gibson hotel,

April 29, with about forty present. The work for the organization of the garagemen of that city is being pushed vigorously. Harry Singer, a member of the board of trustees of the Ohio association, is serving as temporary chairman and C. W. Classon as temporary secretary.

FRIEND TO OUR FRIENDS.

Mr. Bland—It is getting late, but there is one matter that I would like to bring to your attention. It is one of vital interest to us, of compelling attention.

Examine the trade papers of the country today that are standing behind the garage owner. How many of them are seeking to further our interests?

There is only one that is boosting our game. That one is GARAGE EFFICIENCY.

Motor World has left us. This week the paper will be devoted exclusively to garage work, for business reasons which you will readily see. Possibly they will tell us again to wash our windows. But that is the first time the garageman has been recognized since early in February.

Motor Age took a slap at us. And so on down the line, even Automobile and Auto Topics.

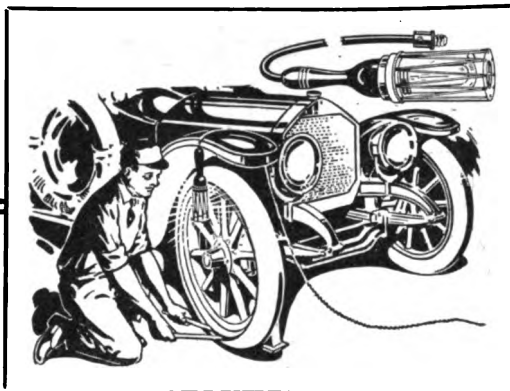
There is only one paper that is standing out for us. It prints more matter of interest to garagemen than all the other papers combined. It is one of the best edited and best printed papers in the United States.

I realize it has your organization and personal support. You want to do more for it, if for no other reason, than for the selfish reason that it can do more for you.

You boys are doing a lot for the paper, I know, but you are not doing half enough.

Ask the concerns from whom you buy if they are advertising in "our paper." It is our paper, for it is the only paper that is working for our interests.

If you have your own interests and the interest of the industry at heart, help the paper that is helping you.



Trouble with Your Automobile

—whether on the dark road or in the garage, requires good, bright light directed on the affected part.

The Automobile Electric Trouble Lamp

may be attached to the car battery, or to any convenient lighting socket. The long cord enables one to reach any part of the car. The lamp is protected by a wire guard. All danger from flame is eliminated.

Commonwealth Edison Company

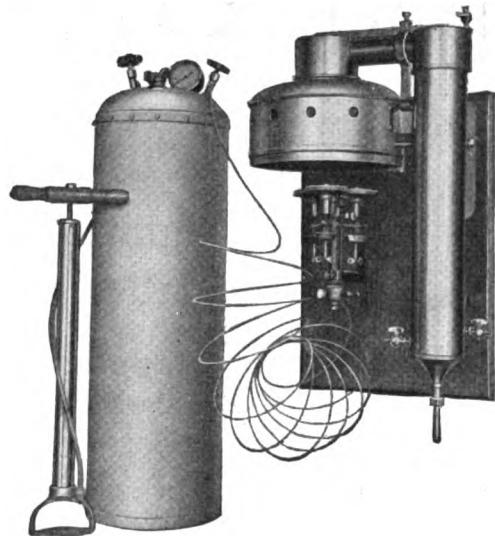
Edison Building

72 West Adams Street

724

GIVE YOUR STORAGE BATTERIES A CHANCE

Increase their life and capacity by using only distilled water when flushing or washing.



Gasoline or Kerosene operated type.

Several hundred garages are pleasing their customers by using distilled water in their batteries.

It is a splendid Talking Point in going after new business.

Your profit from the sale of distilled water will quickly pay for the Still.

CAPACITIES—One-half to 15 gallons per hour.

Operated with steam, gas, gasoline or kerosene.

THE IMPROVED "ROCHLITZ" AUTOMATIC WATER STILL is used and recommended by all the leading storage battery manufacturers.

MANUFACTURED BY

Manhattan Building

W. M. LALOR

Chicago, Ill., U. S. A.

NEW GARAGE ADVERTISING.

Service is about all a garage has to sell nowadays and service cannot be weighed like a pound of sugar or poured out like a cup of coffee, to be sold at a fixed price.

That's why it is hard to advertise Garage Service at a price to fit the pocket-book of the garageman in a small city.

The problem of the garageman, especially in the smaller cities, seems to be solved now in a reasonable way—that is sure to make a hit with progressive garagemen.

The plan is outlined on the cover page of this issue of GARAGE EFFICIENCY and it looks as though it would be pretty hard to beat either in efficiency or price.

There is no question about the ability of the right kind of an electric sign to help garage business, but the unique sign on the cover page and the appropriate reading matter is made doubly valuable by the use of business cards and blotters.

This gives a complete advertising service for garages that is bound to catch like wildfire and become a National institution.

Only one will be sold in a town of under 50,000 population, so it's an exclusive service, too, for the best and most progressive garage.

The offer of 500 business cards and 500 blotters free is bona fide, as the management of GARAGE EFFICIENCY can testify

It is limited to members of the N. A. T. A. only. It may be withdrawn before the next issue goes to press.

This proposition solves the advertising problem of a good many medium sized garages. "The Sign of Service" ought to mark the garage of one member of N. A. T. A. in every city.

AHLBERG EXPANSION.

The Ahlberg Bearing Company of 2636 Michigan Ave., has expanded again and this time announce the opening of two new factory branches on the coast, located at San Francisco and Portland respectively, and the installation of an auxiliary regrounding plant at Los Angeles.

The two new factory branches at San Francisco and Portland complete a chain of eleven factory branches at New York City, Boston, Detroit, Cleveland, Minneapolis, Portland, St. Louis, Atlanta, Los Angeles, San Francisco and Chicago where the home office and main regrounding plant is located. With these eleven direct factory branches supplying a small army of sub-dealers, Ahlberg Regrounding Service may now be said to have assumed a national character, and to be available everywhere motor cars are driven and sold in this country.

When one considers that these eleven branches are not merely distributing offices, but that they comprise stock-rooms, each in a position to supply immediate

replacements on every known type and size of ball-bearing; and that every one of them is a direct factory branch, controlled and financed from the home office at Chicago, one realizes something of the extent of this company's operations.

The business of regrounding ball-bearings for motor cars is only as yet in its veriest infancy. More than a million cars will require bearing replacements this year alone and the number is constantly increasing. The possibilities of development are practically unlimited, and the Ahlberg Bearing Company being the pioneer in the business, has had the field practically to itself, and is the owner of many of the patents on the special machinery required for this work.

Under the Ahlberg system of service, it is possible for the garageman, or owner as the case may be, to receive instant replacement upon turning in his old bearings. The Ahlberg Company does not make him wait for his bearings to be reground, but gives him at once duplicate reground bearings of the size and type required, out of their stocks, charging him only for the work. This feature and the fact that the cost of an Ahlberg reground bearing is only about one-fifth that of a new bearing, is much appreciated by all concerned.

There is a further distinct advantage in using Ahlberg reground bearings in that the balls used are oversize in all of



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**Alkaline
Lighting
and
Ignition
Batteries**

Batteries and Supplies
carried in Stock at our

Service Station

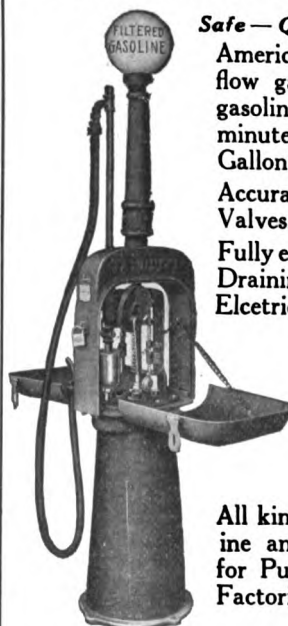
Every Garage Owner should have information
about the Edison Battery on his desk.

Write us.

EDISON STORAGE BATTERY CO.
Orange, N. J.

Chicago Address: 2025 Michigan Avenue

American Gasoline Filling Outfits



Safe — Quick — Accurate — Economical
American Double-acting, Continuous flow gallon measuring Pump delivers gasoline at the rate of 14 gallons per minute, which is as fast as most "Five Gallon" Pumps and costs much less. Accurate Measurement. ACCESSIBLE Valves.

Fully equipped with Filter, Meter, Hose Draining Valve. With or without Electric Light Fixture.

Storage Tanks, any capacity desired.

Portable Wheel Tanks
With Double-Acting Pump
The Best Made

All kinds of Storage Outfits for Gasoline and Oils, Paints, Varnishes, etc., for Public or Private Garages, Stores, Factories, Railroads, etc.

Double-Acting Curb Pump
(Patented)

Write for Bulletins, giving complete information, prices, etc.

The American Oil Pump & Tank Co.
CINCINNATI, OHIO

Dealers Service Station ..FOR TIRE REPAIRS..

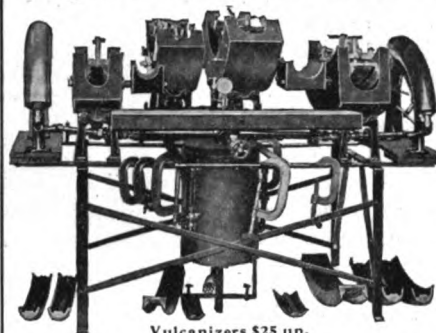
**GUARANTEED WORK
PROMPT SERVICE
RIGHT PRICES.**

**SPECIAL ATTENTION TO
GARAGE ORDERS**

TRIPLE TREAD MFG. CO.

**1545 Michigan Avenue, Chicago
Phone Calumet 2456**

Big Money Double Treading



Vulcanizers \$25 up.

**VANDERPOOL CO., Springfield, Ohio
and 1044 S. Main Street, Los Angeles, Cal.**

Lots of Work. Vulcanized Double Treads wear better, look better. This Vanderpool Vulcanizer does double treading and repairs all size case and tubes from 3 to 5-inch.

these bearings, making for longer wear and more efficiency. The fact that the reground rings have stood the test of service further guarantees the efficiency of these bearings. Racing car drivers long ago learned to appreciate this feature and many of the cars that will appear on the speedways this season have been equipped with the Ahlberg Reground Bearings.

BETTER LIGHTS FOR FORDS.

The Van Sicklen Headlight Concentrator, Elgin, Ill., is putting on the market a headlight regulator for Ford automobiles.

All Ford cars, since the 1914 models, are equipped with electric headlights, the lighting current being supplied by the same low tension magneto which supplies the current for ignition.

The strength of the electric current generated by this magneto depends upon the speed of rotation of the magneto and since the magneto is built into the fly-wheel of the engine, the current strength varies as the speed of the engine. Consequently, while the engine is running at a speed necessary to drive the car about 26 miles per hour the electrical strength of the magneto is 18 volts, or just sufficient to properly light two nine volt bulbs in "series." But when the speed is decreased to about 13 miles per hour the

magneto registers only 9 volts, which would be just the proper strength to light up one bulb brightly, but far too weak for the two.

If it was possible to short circuit one bulb while the speed was so decreased and send all power available in the lighting circuit through the other, the other would burn just as brightly as both would at twice the speed. The Van Sicklen Concentrator does this automatically without the slightest danger of injuring the magneto or burning out either bulb. Thus, above the speed for which the device is adjusted, usually 15 miles per hour, both lights burn just as they would without the Van Sicklen Concentrator but below this speed when the headlights are most needed, and ordinarily are useless, one bulb (preferably the left) burns brightly at lowest engine speeds.

By actual test the Van Sicklen Concentrator gives:

Fifteen miles per hour or above, same light as given without device.

Fourteen miles per hour, four times the light given without device.

Twelve miles per hour, six times the light given without device.

Ten miles per hour, ten times the light given without device.

Eight miles per hour, sixteen times the light given without device.

The Van Sicklen Concentrator is very simple to install, being merely cut into

the lighting circuit between the switch and the lights with one new wire connecting the middle connecting post to the cross wire between the two lights. It does not require a new type of headlight bulb nor any change in focusing. It cannot injure the magneto by drawing off excessive current at slow speeds, for it merely combines the power which is ordinarily divided between two lights into one, causing it to glow at many times the brilliancy of both until the speed is so increased that both lights can be properly lighted.

GOODRICH WINS POINT IN TRADE-MARK FIGHT.

AKRON, O., April 16.—By a decision just handed down in the U. S. Patent Office, The B. F. Goodrich Company has won the first round in the controversy over black tread tires. An application by the Firestone Tire & Rubber Company, for registration of a black tread band and red sides as a trade-mark, was opposed by the Goodrich Company, which claims to possess trade-mark rights in a black tread band used with sides of any contrasting color, and also claims to have used the specific combination of black and red on pneumatic tires prior to the earliest date of adoption by the Firestone Company. In denying a motion by the latter con-

**EXPERT REPAIRING
ALL MAKES**

**Magnetos Coils
Generators
Starting Motors**

**Quick
Service**

**Magnetos
Bought and
Sold, Remagnetized
Ignition and Lighting
Systems Rewired.**

2333 MICHIGAN AVENUE

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CHICAGO

CHICAGO MAGNETO EXCHANGE

Best by Test Always Wear a Smile



**Non-Carbon
Auto-Oils**

**Light
Medium
Heavy**

**Make your cars run smooth
and easy**

A Pennsylvania Product

**Give us a one barrel trial order
Special discount to Garage Men
and dealers**

**If in need of L. O. Soap, write us
for price. We have it.**

The S. A. Schwarz Oil Co.

**Cleveland Ohio Columbus
Headquarters Cleveland, O.
Agents Wanted. Write for our propo-
sition.**

cern to dismiss the Goodrich opposition, the Examiner of Interference says:

"The opposer in paragraph 2 of the notice of opposition alleges use of a mark on tires prior to October 14, 1915, consisting of a circumferential tread band of black intermediate two circumferential bands of contrasting color or colors, these colors being especially light gray or white.

"This mark differs from the applicant's mark only in the color of the band on either side of the tread band, the applicant using red bands and the opposer any bands contrasting with the tread band, but especially gray or white bands.

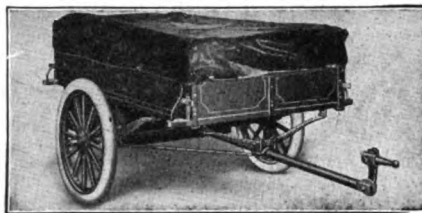
" * * * it cannot be held at this time on a motion to dismiss the notice of opposition that the marks are rendered as clearly different by the difference in color of the bands on either side of the tread that the opposer would not be damaged by the registration of the applicant's mark."

THE AUTO-KAMP TRAILER.

This is a device that will appeal forcefully to motorists who are fond of camp life in the open. It is quickly attached to any motor car and enables you to go where you will and camp at any spot that pleases you.

A comfortable sleeping tent with two storm-proof windows giving ample ventilation—mosquito-proof—two large dou-

ble beds—high and dry—with real sagless springs, comfortable, heavy mattresses, pillows and bedding—dining table, two-



The Kamp Trailer Ready for the Road.

burner gasoline stove—icebox, cooking outfit, dishes and cutlery. Equipped with dust-proof food compartment. It is water-proof, wind-proof and insect proof.



The Kamp Trailer—A Hotel on Wheels.

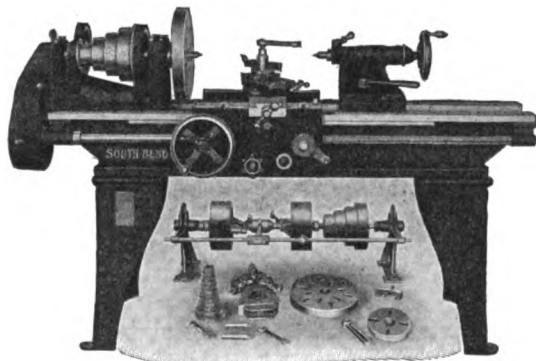
There is plenty of room in the Trailer for extra baggage—suit cases, hammock, folding camp chairs, etc., so that you can be just as comfortable in camp as at home. Curtain divides tent into two compartments, if desired. Row boat can be carried on top of Trailer for fishing and hunting trips.

The auto-Kamp Trailer folds compactly like a Pullman berth and has a water-proof cover that keeps everything dry even in the hardest storm. It attaches by universal socket joints—adjustable for any car. No trouble—it's just as easy to drive with the Trailer as without it. It follows behind your car at any speed or over any kind of roads—and tracks perfectly around turns and corners. Camp equipment can be removed in a few minutes, giving a commercial trailer of 1,500 pounds capacity—44x72 inch body with spring end gate.

For a day's outing, the week-end trip or long-tour the Auto-Kamp Trailer gives greater pleasure and freedom from care. You can follow the long white road at will and always have a comfortable sleeping tent and completely equipped kitchen ready for instant use. For fishing, hunting and pleasure trips it is very convenient.

Motorists who are fond of outdoor life should write for circular to the manufacturers, The Auto-Kamp Equipment Co., Saginaw, Mich.

SOUTH BEND LATHES



Regular Equipment, as Illustrated Under Lathe, is Included in Price.

The practical Lathe for the Machine and Repair Shop.

13-Inch Lathe, Complete,	\$185.00
14 " " "	209.00
15 " " "	230.00
16 " " "	294.00
18 " " "	354.00

Straight and Gap Bed Lathes

Send for free catalog giving prices on the entire line.

HOW TO RUN A LATHE

REVISED EDITION NO. 15. PRICE 10 CENTS
CONTAINS OVER 100 ILLUSTRATIONS AND 300 SHOP KINKS
10 Cents Postpaid—Coin or Stamps Accepted

SOUTH BEND LATHE WORKS
510 E. Madison St. South Bend, Ind.

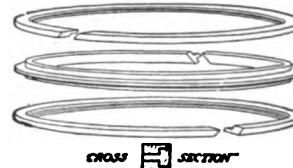
INSURE YOUR ENGINE'S LIFE

with Trump Multiple Piston Rings

They make old engines new and KEEP NEW MOTORS NEW.
Never lose compression.

Regular
Sizes
\$1
Each.

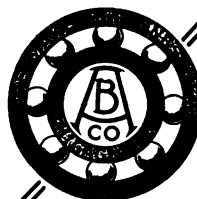
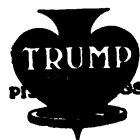
Any size to
order.



Write
for
Booklet.

For Automobiles, Tractors, and every kind of gas engine.

Trump Mfg. Company
5 Union St., Crown Point, Ind.



BALL BEARINGS REGROUND

Mr. Car Owner

Do not throw away your worn bearings have them reground at a small cost. Guaranteed equal to new.

Mr. Garage Man and Dealer

Favor your customers by keeping their repairs bills as low as possible

Write for our Catalogue "F"

AHLBERG BEARING COMPANY

2636 Michigan Avenue Chicago, Ill.
New York Minneapolis Los Angeles Boston
Cleveland Detroit St. Louis

How to Go Gunning for Trouble on a New Engine

By Charles Erhardt, Foreman Repair Department Garfield Park Auto Garage, Chicago, Ill.

CHICAGO, ILL., May 6.—Editor GARAGE EFFICIENCY: I will try to tell you some of my experiences with clutches and some of the troubles that I have found in some of the cars. Of course, it must be understood that I am not trying to tell any man his troubles right off hand. That is pretty hard for any mechanic to do without seeing the car or having an explanation of the trouble.

Cone Clutches.

We will suppose that an owner comes in and says: "There is something wrong with my clutch." His is an old model car with a cone clutch.

In locating the trouble I always go out with the car and see for myself what is wrong. If I find that the clutch is slipping I clean it out absolutely clean, that is, I take an old hack saw blade or a piece of thin, flat metal and release the clutch by hand, or have some one hold it out for me, then scrape all the dirt out and turning clutch, doing the same thing until you have gone all over it.

After it is clean get some goo and squirt it on, or if you have an air pres-

sure tank make a spray and clean it off. Let it dry, then give it a good dose of neatsfoot oil.

Examine the Clutch Lining.

Before doing this see that clutch lining is not burned out or worn out on account of slipping. If clutch lining is O. K. and it still slips, try putting just a little more tension on clutch spring, if adjustable.

I also have often found broken clutch springs. In such cases remove the old spring and put in a new one, as there is no use trying to fix up the old one.

If the car is old it may be that the lining is worn out and needs a new one. In some cases it has been found that the flywheel clutch seat has been worn, also, so that you may have to put a liner or shim under the clutch lining to make it hold. Sometimes after you have relined a clutch and adjusting you find that the lining you used was just a little too thick, and that the clutch will not release. If you can release it enough to start the car it may wear in all right, but if you cannot release it the best thing to do is to

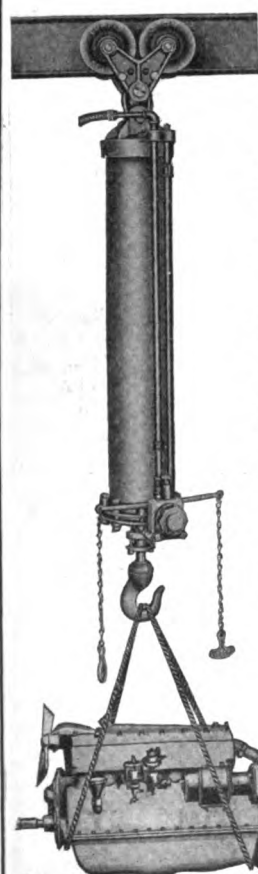
put it in the lathe and turn it down a little so that it will fit. If you have no lathe you will have to file it to fit.

More Clutch Troubles.

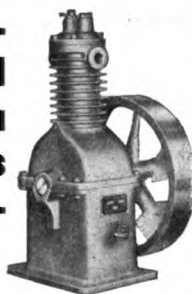
When an owner comes in and says: "My clutch is sticking or grabbing," the difficulty may be due to a good many things.

On a new car it always is safe to give it a good oiling, that is, oil the clutch bearing, shaft, yoke, release roller, clutch pedal shaft and ball races or retainers, if there are any.

On an old car it is not so easy. We will say that this clutch has a bronze bushing in clutch hub and that it has been used without receiving attention in regard to oiling, etc. The chances are it is good and dry and has started to cut and possibly has ruined the clutch pilot and the bushing, so that the clutch cannot be released and grabs when it is let in. If that is the case it is just as well to take out the clutch and if the clutch pilot is scored it may have to be taken off, if it is bolted on to crank shaft, but if you can get at it right, start the en-



Your Air Compressor Will Work for You as Well as Your Customers.



Is your compressor idle a good deal of the time? Are you paying for electric current that you are not using? If so, get an air hoist and put your compressor to work. You are paying for the power anyway, so make use of it. There are hundreds of different ways of using an air hoist. It costs no more than a slow chain block and needs only one man to operate it. Your customers will patronize the garage that is equipped to do good work, and do it quick, and will pass the word on to their friends.

Let us quote you and give you information as to how an air hoist will pay you in your garage.

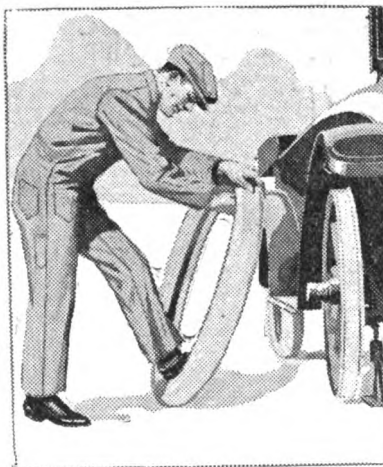
CURTIS PNEUMATIC MACHINERY CO.

1597 Keimlen Ave.,
ST. LOUIS, U. S. A.
530C Hudson Term., N. Y.

Clothes Safe from Grease and Dust

No need now to ruin your clothes with odd jobs on your motor car. Protect your clothes — from head to foot—with a

Shanhouse MOTOR SUIT



One - piece over - garment for every use.

Put it on in a minute. Take it off in a second. Keep it always in your tool box, handy for instant use. Made of olive khaki to go on over all your clothes — comfortable, durable, practical and washable. Costs but \$2.

Don't change your clothes every time you change your tires, clean or grease your car. Save big bills at the cleaners.

If your dealer cannot supply you, send \$2.00 giving chest measure and dealer's name. We will send you one direct, prepaid. Money back if not satisfied. (5)

W. SHANHOUSE & SONS
Dept. 105
ROCKFORD, ILL.

gine and get a smooth file and file it up, then polish with a little emery cloth, but be sure to get it as round as possible. Then take the bushing out of the clutch and make a new one to fit, or, if, as it often happens, the bushing that you get or make is a little tight on a new shaft, it might fit after pressing it in the old hub, but be sure that oil holes line up and do not forget to put oil holes in new bushing.

Some bearings get oil from crank shaft and that, at times, gets plugged up. Take a wire and clean it out and get a little air pressure and blow all the dirt out. A tire pump will do this.

Sometimes you will find that somehow or other the clutch pilot is sprung. This also will cause clutch to grab and not to release. The best thing to do is to take it off, if it comes off, and straighten it.

If that is not possible you may have to drop crank shaft and straighten it that way. It may be possible to straighten it, if you have the room, by getting the high side and putting a piece of pipe over the end. If you have a big torch perhaps you can do better work by heating it before making the attempt.

A broken clutch bearing will cause trouble without a long pilot.

Oiling Clutches Important.

The one great cause of trouble is the

method that may be due to the fact; that owner's neglect to oil these parts and that is the reason we have more or less trouble with clutches.

Some clutches are supposed to be oiled from the transmission, but they let the oil get low and the bearings do not get any oil, or it may be that instead of putting in 600 W oil they put in grease and it will not work out and do any good. That is where the trouble starts and it ends in the repair shop.

Plugging the Oil Drain.

I have found cases where the cone clutch was enclosed and someone told the owner to plug up the bottom hole that serves as a drain for the oil. With the hole plugged it is filled with gasoline or kerosene and run for a minute or so and then drained, the owner never realizing that he is taking all the oil from the bearings and consequently never giving it a drop of oil after cleaning.

I repaired a car that was treated in this way and the owner told me what had been done. This is one of the troubles of repairing.

The clutch on a car brought in would not release. I found the clutch cross-shaft was out of line and loose. I tightened it up, but the clutch remained out of line. To remedy I shimmed it up so that it was free when clutch was in. If you have to file the holes so that it will

come over to its place, when using this is, its bearing down too heavy or one side may be further ahead than the other. Another simple, little cause of trouble is that the clevis pin may have dropped out.

Other Causes of Trouble.

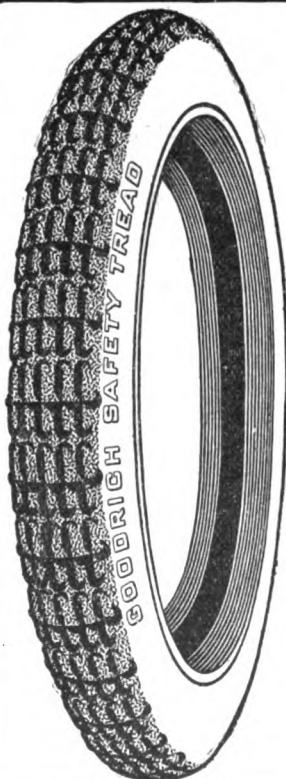
I have seen unit power plants where the case was sprung and that often gives a lot of clutch trouble. When the fly-wheel runs out a great deal it will cause crank shaft and clutch trouble.

When adjusting a clutch pedal shaft be sure it is free when clutch it in; also see that it does not strike floor boards, as that will keep clutch from going in the way it should. I give the pedal shaft 3/16 to 1/4 inch play to make sure I will not have any trouble there.

You will find more of this pedal trouble on unit power plants than on other cars and independent systems.

Disk Clutches.

Now we will take up disk clutches. There are dry steel and bronze clutches, steel and raybestos lined, steel and bronze and steel and steel that are made to run in oil. All clutch trouble comes under one head, but they are a little different. A dry disk clutch will grab and clatter when the disks are worn, or it will not release on account of the disks having become very hot at some time and having sprung out of shape. The clutch will not hold in this condition because it has



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little, if any, bearing surface or the disks may be gummed up.

Release the clutch and try cleaning out with gas. If that does no good remove the clutch, as you will have to do so later. I have found clutches that seem to stick on doll pins and bolts which will not let them release in the right way and causes them to stick, or if the clutch has a drum that fastens to the flywheel and has keys on the inside to hold the disks this may be so that there are burrs on drum keys or the disks are a little too small in slots so they will not work free on drum.

To remedy find out which ones stick, take out and file them and your trouble will be over. If you take the clutch out be sure it works free before putting it in. If it does not hold tighten the spring.

Trouble on the Oil Clutch.

Now, then, we have a little trouble on the oil clutch which does not release properly, but works after it gets to going. Perhaps the oil has all leaked out and disks are sprung, but before removing the clutch try cleaning with a little gasoline. To do this take out drain plug and put in about a quart of gasoline, start engine, release clutch, put in speed and put on the brake. Let the clutch in until you feel it engage, but do not kill engine. Do this a couple of times, then drain. Repeat several times, then mix your oil and kerosene or pure oil—they run better on half and half than all oil—and the chances

are it will work O. K. if it is not too far gone.

All clutch troubles are pretty nearly alike and they are hard to explain until you hear the clutch work or until the trouble is explained, and then and then only can one make an attempt to say what is wrong.

This Thing of Grabbing.

It always is well to be sure that it is the clutch that is giving trouble on either a disk or a cone clutch.

On this thing of grabbing it may be a broken pinion, gear bearing or a broken bearing in the transmission which also will cause clattering.

The clutch is the life of a motor car. Without it you cannot run at all, so it should be well cared for and calls for frequent inspection. The best and most careful owners make mistakes in not taking care or having care taken of their clutches.

When removing a clutch try to take it out as a unit and you will not have so much trouble as you will have if you try to disassemble it in the car. To get the clutch out calls for the removal of the transmission in a majority of cars.

Transmission Troubles.

Usually when the clutch does not release the driver has trouble shifting from one speed to another. Frequently the lever will not stay in speed. See if the

interlocks are locking in the right place, then see if the gear goes in mesh all the way and while you are looking at the transmission see if the gears are all right. If they are it may be that shifting finger on hand lever loosened up or the gear shifting arm on gear in transmission was broken or worn out. In all cases you will have to take out the transmission, if you find that any shifting parts inside transmission are broken.

There is also such a thing as getting in two speeds at one time. This is caused by lost motion in shifting lever and then not bringing lever to neutral position before going to next speed. If that happens take cover off the transmission and pry gears back to their place and the first time you get a chance have it repaired.

Wornout Bearings.

There also is a lot of trouble caused by wornout bearings or by bearings that have been adjusted too tight, got heated and started to cut, and if this happens on driving shaft the car will clatter when you get in high gear until it gets up its momentum and also every time the car hits a bump. It may be possible to repair shafting lever and arms without taking transmission down.

Then, again, you may have end play in one of the transmission shafts which is easy to adjust in some cases and difficult in others. If the work can be done with

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an adjustable cap the work can be easily and quickly done by turning the cap after removing the lock. If you have no adjustable cap make a washer the size of the shaft, measure the play, take out bearing, put washer against the shoulder and put the cap back on.

Changing Transmission Bearings.

In looking for end play take off transmission cover and take screwdriver and put it back of gear, top or bottom and pry shaft back and forth on countershaft and if possible get hold of shaft with your hand. When transmission has end play it sounds as though something was knocking in transmission enclosure and then, again, you cannot hear it at all. I do not think it would be possible to explain this except that you notice it when you are changing gears, and there is only a short thump, or when throttled real low and you try to get away quick.

Knocking in Transmission.

Knocking in transmission may be due to a good many causes. One that I have in mind is very easy to locate. A pin may have gotten into oil or grease and finally worked between teeth of gears, or perhaps a piece of broken lock washer, a piece of broken gear or any other kind of metal which in some way worked up in the gears. The chances are that you will notice it if, when standing idle, you get a thump with every revolution of the engine. There may be two or more pieces in the gear.

Do not confuse this with a knock in the differential, as you get this thump when running idle or on the road. Sometimes these pieces can be chiseled out. After you get them out drain transmission and look for more. Try out shafts to see that they are not sprung. If they are badly sprung you will notice it in the shifting gears. All that can be done is to take transmission down and straighten shaft. After you get it down note condition of gears and bearings which may save you a lot of time afterwards.

When Transmission Howls.

Another thing some owners do not like is that their transmission seems to howl more than other cars of the same model. All you can do is to look over gears, see that they are not too tight or too loose, then see that bearings are free and if it is still bad take it down and look over gears carefully. There might be a cracked gear, it may be sprung or it might be cut a little off. There are a great many possible causes, and those given are only a few of the many.

I have found gears with all of the teeth worn off because the driver could not release his clutch or the gears did not mesh, but he kept right on running until he could go no further. Then the car is brought in and the owner says: "I wonder how it happened?"

Some of them get up in the seat, race the engine and try to shift gears. If they

make it you can say they have a good clutch. If not, you can hear the gears going to pieces.

Other Gear and Transmission Troubles.

Sometimes they come in and say: "My car will not stay in high." That may be due to the speed lock being worn out or because the dogs on sliding gear are worn off or they may not go in far enough, due to their not being adjusted properly. Or, as I have explained before, about finger and gear shift arms.

I have found that gears will come loose on countershaft and strike another gear, or a sliding gear goes back too far and strikes only once in a while.

To locate these troubles it is necessary to drain transmission and clean it so you can see what you are doing.

You will find cars that will not shift to certain speeds. Perhaps it works hard or the gears may not be lined up and the driver continues to pull until he gets into the desired speed. While doing this he may have been springing his shifting lever so that he had two good speeds and two bad ones.

In such cases try to spring the lever back, cold if possible to save paint. If that can't be done take it out, heat it and bend it where it belongs.

When looking for noise in transmission see that all bolts and nuts are tight, as these sometimes work loose.

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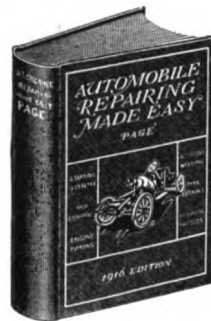
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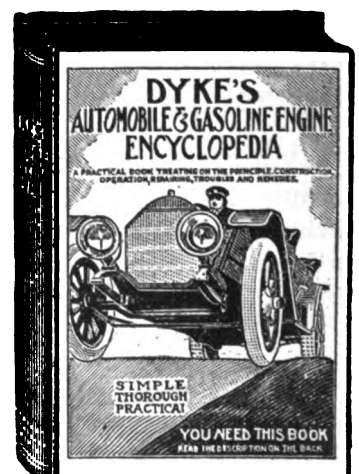
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GARAGE EFFICIENCY

THE NATIONAL GARAGE MONTHLY

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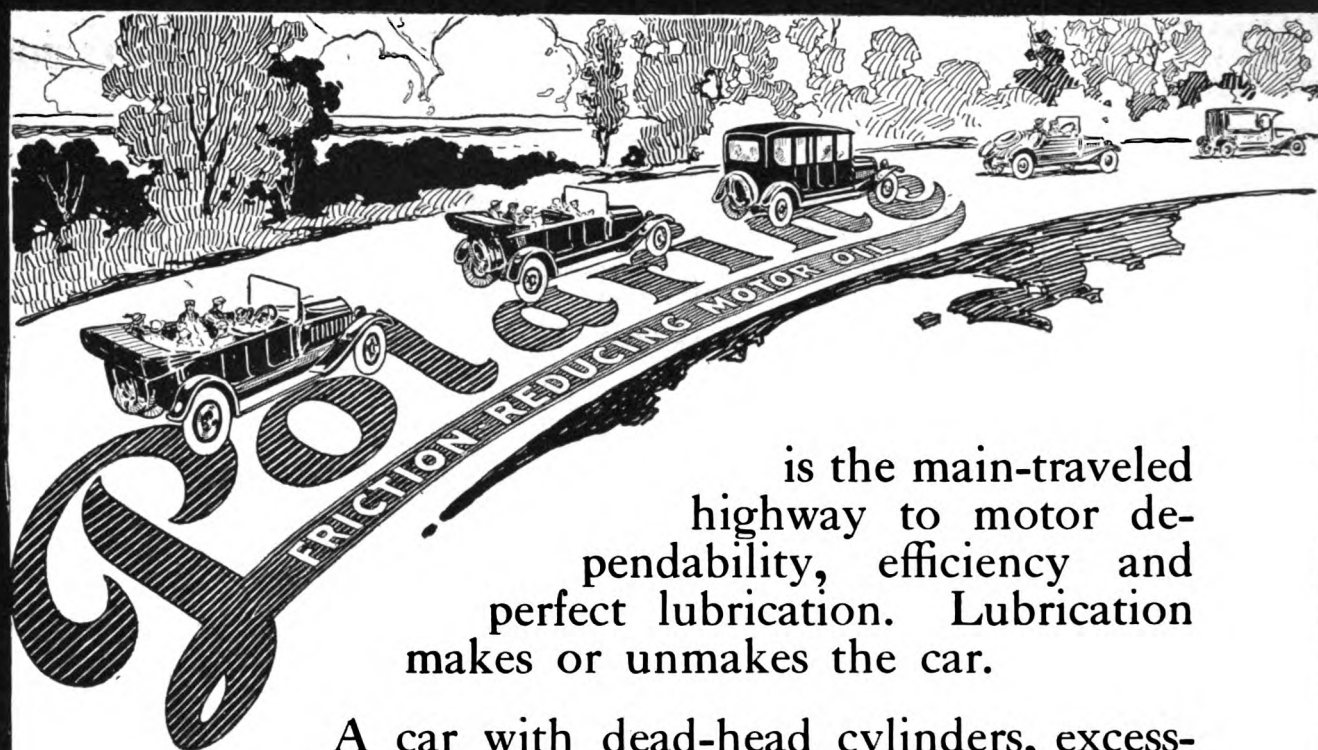
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ILLINOIS TIRE AND ACCESSORIES DEALERS' ASSOCIATION
GARAGE OWNERS ASSOCIATION OF OHIO
IOWA RETAIL AUTOMOBILE DEALERS ASSOCIATION
GARAGE OWNERS ASSOCIATION OF MICHIGAN

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Devoted to the Interests of
CAR DEALERS
GARAGE OWNERS
GARAGE OWNERS' ASSOCIATIONS
AUTOMOBILE and
SUPPLY DEALERS and REPAIR MEN.

FOUNDED BY
THE CHICAGO GARAGE OWNERS'
ASSOCIATION

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WINNING THE RACE.

Don't underestimate the other fellow. An average speed of 83.26 miles per hour enabled Resta to win at Indianapolis. In the Chicago race the same man won but it was necessary for him to drive his car 98.61 miles per hour to turn the trick.

Dario Resta is said to have weighed each factor in both races with exceeding care before the start was made and to have formed his plans accordingly.

His plan was to win.

On the ball field, the race track, the battlefield and in the field of business victory constantly is being awarded those who follow out definite plans. Not only are these plans definite and concise in every particular, but they are made with eyes open to the forces to be employed by the opposition.

In business, unfortunately, there is a disposition to adopt a happy go-lucky attitude and the main thought back of it all seems to be that "things will break

my way, I'll have a bit of luck and this matter will turn out to my liking."

In reality things do not turn out—they are worked out to the uttermost detail. A plan that is lacking in detail is lacking, also, in the primary essentials of a satisfactory outcome.

If you do not plan the detail in advance you will work it out in sweat and blood when cleaning up time comes.

THE DEALER'S CONTRACT.

A certain dealer placed an open order for twenty-one cars, to be delivered on or before July 1, shipments to be made as fast as possible. Perhaps it would be in the interests of clarity to state that he held the usual contract with the manufacturer and, in accord with the terms thereof, he ordered twenty-one cars.

"About July 1 we will begin refunding deposits made by our customers" this dealer remarked casually. "It hurts, but we are becoming accustomed to it.

"Whenever a factory is enlarged the company takes on a lot of new dealers and the old dealers who have built up a trade continue to spend money to sell cars they cannot supply.

"Why do we do it? Well, if the factory should come through with the full quota ordered we would have to take them and there always is the possibility that we will get all the cars we order.

"It costs us just as much to sell a car we cannot deliver as it does one that we can. We lose our profit and our selling expense.

"I can't prove it now, because the fool public is taking all the cars the manufacturers turn out, but I am firmly convinced that the manufacturers will live to regret their present policy, or to change it.

"Some day an automobile manufacturer will arise who will offer a contract that is not entirely one-sided. It will be a legitimate business contract, binding both parties alike, one to furnish the cars, the other to accept them when delivered.

"When that day comes the dealer will not be the goat unless he overestimates his ability to sell cars.

"Statisticians claim there is a present potential demand for 5,000,000 motor cars in the United States. When this demand shall have been fully supplied the demand largely will be for replacement.

"A continued call for one million cars a year is within the realm of possibility. This, I take it, would be about sufficient to supply the demand for both pleasure and commercial motors. If that conclusion is approximately right, then it simply is a question of filling up the reservoir of demand and continuing to operate at about our present capacity.

"Before that time comes, however, the manufacturers probably will be producing, or able to produce, a great many more cars than will be required to supply the demand.

"In view of this fact it is time the car dealers adopted measures to protect themselves. This year, next year, possibly the year to follow and may be the year after that we may continue to sell cars we cannot deliver. Then we face the probability of not being able to sell the cars we get.

"Unless we are able to protect our own interests we may find this automobile business is set like the old darkey's snare, 'to ketch Brer Rabbit a-comin' an' a-goin'."

A contract, to be a contract, must be reciprocal in its terms. An instrument that binds one party without at the same time binding the other party is not equitable and it is doubtful if it is legal.

Under present conditions the manufacturers would like to supply all the cars their representatives can sell. Their output is oversubscribed so they deliver on a pro rata basis, which probably is the best they can do under the circumstances. The future contains a menace that should not be disregarded.

CAR DEALER AND GARAGE OWNER SHOULD JOIN THE N. A. T. A.

National Automobile Trade Association.

Founded—January, 1915, by delegates representing eighteen states in convention assembled at Chicago, Ill., to advance and safeguard the business interests of public garage owners, automobile dealers and retailers of automobile parts and accessories, to promote their general welfare by developing a close harmony between the several members and a co-ordination of effort throughout the United States.

Why This Association Was Founded.

Legislation—To promote beneficial and oppose harmful legislation nationally and in the several states, such as lien laws and the Stephens bill, now before the National House of Representatives.

Insurance—To reduce excessive cost to members for fire and liability insurance.

Manufacturers and Jobbers—To co-operate with other associations.

- (a) To change the dates of announcement of new models.
- (b) Toward the standardization of accessories and parts.
- (c) To secure the proper discounts from jobbers and to protect the same, in order to assist in the elimination of price-cutting.

Banking and Credit—To secure proper recognition and credit rating by commercial agencies and to improve banking facilities.

Standardization of Products—To establish a laboratory for the examination and approval of products and the determination of proper ingredients of oils, greases, soaps, etc.

Standard Practice—To establish uniform service for garage owners and automobile dealers to be known as "Standard Service."

Cost Systems—To advocate a uniform cost system tending to eliminate price-cutting and over charge.

Employment Agency—To encourage the maintenance of a record of local employes for the use of members.

Credit System—To establish a uniform credit rating of customers to be used locally by members as well as nationally.

Automobile Owners—To co-operate with the A. A. A. and similar organizations, to assist in the elimination of the undesirable garage owner and automobile dealer.

Good Roads—To work in harmony with the Good Roads Associations.

What Has Been Accomplished.

Affiliated State Associations are to be found in Illinois

(Garage Owners' Association of Illinois), Michigan (Michigan Automobile Trade Association), Iowa (Iowa Retail Auto Dealers' Association), Ohio (Ohio Automobile Trade Association), Minnesota (Minnesota Retail Automobile Dealers' Association). Local associations are affiliated in the chief cities of these and other states and general members in practically every state.

Co-operation has been secured with the National Association of Automobile Accessory Jobbers protecting the legitimate dealer and dooming unfair competition by eliminating improper trade discounts.

Recognition by leading automobile trade papers as the accredited national association of garage owners and automobile dealers.

Concurrence by various manufacturers in aid of members particularly relating to the advance announcements of forthcoming new models. Insuring courteous consideration of future recommendations.

Reduction in Insurance Cost—An insurance organization of twenty-five years' successful operation has been secured to underwrite risks of members whereby insurance costs will be greatly reduced. This feature alone should save you many times your annual dues.

Why Join?

The National Automobile Trade Association is the recognized representative of the retail automobile dealer and the garage owner everywhere.

The chief and constant purpose is to anticipate the needs of its members. By concerted action it is possible to accomplish results utterly impossible of attainment by scattered organization or by individual effort.

General Members Are Solicited in Every State and City.

When a sufficient number of general members are enrolled in any city or state the National association will undertake to hold a convention, elect officers and establish self-governing local and state associations.

Every member of local or state affiliated association is entitled to all the benefits and privileges of general membership.

The Cost

of general membership fee is \$10, which includes enrollment fee and dues for the current year.

Considering the benefits to be attained, the cost is insignificant.

Local associations determine their own dues and

charges, the practice being to provide necessary funds for local needs.

You Have Realized the Value

and necessity of co-operation as applied to your own business?

This movement is supported by the leading garage and automobile interests of the country. They need you. They deserve your support and your member-

ship will result in a direct and personal benefit to you.

For further particulars address

R. A. WILSON, National Secretary,
NATIONAL AUTOMOBILE TRADE ASSOCIATION.

Continental and Commercial National Bank Bldg.,
208 South La Salle Street, Chicago, Ill.

THEN AND NOW.

THEN—

In the spring of 1909 a customer walked into a salesroom in a central Illinois town and announced that he was in the market for a car.

He was greeted with a cordial smile, given a good smoke and the merits of the car on exhibition were carefully and elaborately explained.

"What is the best price you can make me on that car?" he asked finally.

The salesman paused, stifled an inclination to shade the price and named the f. o. b. factory price, with freight added.

"Well, what will you give me for the car I am driving now?" inquired the customer. "Come out and have a look at it," he added.

A careful examination of the customer's car followed. "About \$375 is the best I can do," advised the car dealer.

"You're 'way off," was the concise retort of the customer. "I can get five off on the Blank car and trade in my old one at \$425, simply by driving across town. I rather would have one of your cars, but you will have to come up some on your allowance if you expect to sell one."

"Gray's simply cutting the heart out of this business," complained the dealer. "I simply can't cut the retail price, but I'll meet his allowance on your old car."

"Well, I guess I will take your car, but I'm paying more than I can afford to pay, and more than its worth, when compared with the price Gray is making."

"If you had to tear down and rebuild an old house every time you secured a contract to build a new one, you would think differently about this price question," remarked the dealer, quietly. "You see," he added, "we must rebuild and sell your old car and it takes as long to sell an old car—and usually more salesman-ship—as it does to sell a new one."

"Never looked at it in that light," said the customer, a contractor, "but if that is the condition why don't you remedy it?"

AND NOW—

The telephone rang and N. A. Gray, dealer in automobiles, answered. "This is Blodgett," said the man at the other end of the wire. "Coleman, from north of town, is here after a car. He says you offered him \$400 for the 1910 model he is driving. Is that right?"

"Yes, that is what I will allow him," Gray answered, cordially.

"Well, then, that is my price. Much obliged, old man, and if he doesn't buy here we will see that he buys from you."

That is not a fanciful tale, but a rude outline of what actually occurred in a central Illinois town.

The automobile trade is beginning to realize that one man cannot remedy an evil. Also those identified with it now understand that the public is playing one dealer, whether handling cars, accessories, supplies or repairs, against other dealers to his, the customer's, advantage and profit.

In a disorganized condition the trade is at the mercy of the buyer. Working in harmony, for the benefit of all identified with the business, the welfare of the public can be conserved and the best interests of the trade promoted.

Co-operative effort—association work—has straightened out the business tangles in many localities. This work does not eliminate competition, but it does away with suspicion, distrust and unfair business methods.

Association work in the automobile field is in its infancy. It has not been fully tried out along broad, constructive lines. It is starting on that basis now and the progressive are rallying to the new standard. Are you?

GETTING TOGETHER.

That great \$223,000,000 automobile merger is said to be off.

It may be on again in the next issue

of the paper that announced the failure of the efforts of those concerned to get together.

An amalgamation of interests of the magnitude involved in this consolidation of automobile properties cannot be brought about in a day.

Whether or not this particular merger is consummated it may be set down as a foregone conclusion that there will be a closing up of the ranks among producers.

When a concern is conceded to have made a huge success of its enterprise, when pocketbook and pride both are filled to overflowing with the fruits of endeavor it is somewhat difficult to convince the owner of the business that it is to his advantage to consolidate, that is, to merge his individual and business personality, with that of others who perhaps are equally successful.

Any one that has tried to induce "minds to meet" is fully acquainted with the vast number of objections, small and great, that must be overcome.

This is the outcome when attempts are made to consolidate great business enterprises. It is the outcome, also, when an endeavor is made to secure the co-operation of many who are interested in any particular line of industry.

Getting together on the part of the big manufacturers is their problem. It is the problem of the retail automobile interests of the country to get together and to stay together. It will be uphill work at the start, but it is work that will more than pay for itself in understanding, goodwill and good profits.

THE QUITTER.

You're "sick of the game," well, now, that's a shame,

You're young, and you're brave, and you're bright;

You've had a "raw deal" I know, but don't squeal,

Buck up, do your damndest and fight.

It's the plugging away that will win you the day,

So don't be a piker, old pard!

Just draw on your grit; it's so easy to quit;

It's the keeping your chin up that's hard.

It's easy to cry that you're beaten, and die,

It's easy to crawfish and crawl;

But to fight, and to fight when hope's out of sight,

Why, that's the best game of all.

And though you come out of each gruelling bout,

All broken and beaten and scarred,

Just have one more try—it's dead easy to die;

It's the keeping on living that's hard.

Figures of Philosophy By the Garage Bookkeeper

Some men are far too modest but others make up for it. "A Garage Bookkeeper," of Indianapolis, Ind., who has developed powers of observation, has forwarded some of his thoughts and then, being a shy shrinking soul, he withheld his name. The thoughts are worth while and the name should be forthcoming some day. Here they are:

HANDLING THE SHOP.

I was very much amused the other day when a customer came in to pay his bill and, on being told the amount, laughed, saying he always felt like a charity hospital when he came to pay his bill at our place.

Now, as this might be construed in two ways, I want to say that our garage never undercharges nor overcharges. Our labor is placed at hour rates and strict account is kept of every man's time. Here is where the efficiency of a good workman comes in. He will keep at his work and not monkey. If he stalls on his job and the car owner is on the outlook he will bring in a kick when he settles his bill. No workman's time should be charged in full until he has been tried out by the garage owner himself. When this is done he knows what he is charging for.

This man paid our proprietor a high compliment when he said "He has the right idea, for in giving his customers good work and a uniform price we come back and bring others, thus making him more in the end than a big swipe would have made him on the first charge. I've had it laid to me many a time by these garage men and I know what I am talking about."

To be sure, there are the chronic kickers and old maids. Yes, there are old maids among the men as well as among the women, for we have several among our customers. They come in with an exacting look on their countenance and speal out their tale of woe as if they were the only ones that needed attention. And their work must always be done at once, even though they forget they want to go to Aunt Sarah's on Sunday until Saturday noon. Then the crook himself is always looking for the crooked thing to be played on him.

One man, a doctor, never pays more than \$20 on his account at a time and constantly asks if he has been given credit after he has received statements with credits on them. Several times his \$20 check has been returned for lack of funds.

As there are men of all classes to deal with in this business, the people connected with a garage have to read human nature readily, do their work well and be able to cope with the different dispositions of their customers.

"JES GETTIN' BY."

The other day just as we were about to sit down to lunch I answered the door bell and found an old woman vender selling pins and pencils, who, being onto her job of being refused, leaned forward in a very pleading way, asking me for a couple of salt crackers to nibble at as she went on her way, as she didn't have the price for lunch at the counter. Although being averse to feeding beggars, the aged always appeal to me, so, though I didn't recall having any salt crackers at hand, I asked her in and seated her at the kitchen table, where the maid served her the same lunch as we had.

After she left the maid said: "Lord, but that woman acts mighty curious. She wouldn't eat that good butter 'cause she says she never eats butter, and the bread she wouldn't eat cause she said it was a trifle hard, and I sure cut it off the loaves you all et off of. She said the woman over in the flat gave her a dish of pudding and over on the next street one gave her a piece of steak."

When I expressed my surprise the old darkey broke in saying, "Yes, honey, she jes gettin' by that a-way."

On my way to the office I wondered how many of us were "Jes gettin' by," and were completely satisfied with ourselves in doing so.

There is a great deal of serious truth in the old darkey's expression. We always get what we are looking for if we keep at it and if we don't get our warm bread one place, but keep on we will get it in the end.

If we are satisfied with "Jes gettin' by" we will never do any better, either.

Applying the Lessons.

On looking about the office and accessory room when I reached the garage it really looked like I was "Jes gettin' by," so I started to look over my business and stock at once and by evening it was an entirely different looking place with a card of rules and regulations hanging in a conspicuous place.

I will confess that the garage man very easily drifts into slovenliness and himself being satisfied with "Jes gettin' by," he can't expect any more of his helpers. The garage man is at fault himself if his workers are deficient, as he must set the standard and see that it is upheld.

I've sized up every business man I have seen ever since to see if he was "Jes gettin' by" and it don't take long to come to the conclusion. Did you ever

notice how some years we are required to do so much more than others and we make it because we know we have to? We have it in our minds to do so. That is the great question. We must first think it and then if we think hard enough we will do it.

I'm not going to be satisfied any more with "Jes gettin' by," or I will feel as if I can do no more than the old woman who got her steak at one house and her pudding at the next.

TAKE A GUESS.

Is the author "jes" a bookkeeper?

AND, if you addressed the author properly, would you say Mr., Miss or Mrs.?

Regardless of the sex question, what more are you doing than "jes gettin' by?"

HALBERT'S EDITORIAL.

This worth while information was not written by Mr. Halbert. It was talked by him at the last meeting of the Garage Owners' Association of Chicago. It is worth the attention of a great many people; particularly is it worth the attention of garage operators:

"Real estate men are grabbing off every likely location for a garage and are putting up many 50 foot buildings.

"We may estimate the land value at \$2,000. The building will cost \$6,000 to \$10,000.

"This makes a good investment from the owners' standpoint for such buildings pay better than apartments, as there seems to be plenty of garagemen who will rent such buildings, paying \$200 a month.

"The capacity of such buildings is 30 cars. On a flat storage rate of \$10 a car there is an income of \$300 a month. Our figures show there is not a garage operated on this basis that can make expenses unless the garageman is doing at least \$17,000 worth of business, aside from storage, each year.

"And I will add that there are not a great many of them doing that much miscellaneous business.

"If the garage is kept full the storage will pay the rent and give the operator \$100 with which to meet his other expenses. Without this accessory business the operator cannot break even."

ESTABLISH CREDIT BUREAU.

The Washington Motor Trades Association of Seattle, Wash., has inaugurated a state-wide campaign to bring the automobile dealers, garage and accessory houses in touch with each other with a view of promoting business by extending credit in the proper places. Branch offices of the association will be opened in Tacoma and Spokane. Another department will handle collections.

Intensive Cultivation in Merchandising

A Story That Should Appeal to You

Ali business enterprises must progress or go backward—and it is much easier to go backward than to progress. Methods that were once successful are so no longer. The man who is content merely to keep his garage open and see that his stock is fairly complete might have succeeded in a past era, but has not one chance in a million of attaining even a measurable degree of success today. Absolute failure with the final assistance of the Sheriff as a salesman is much more likely to be the result.

The intelligent garage operator and retail automobile dealer must realize that his possible profits are being cut down by the energetic competition—often unfair—that he is compelled to meet daily. But the remedy is in his own hands. It is not enough to be ready to serve patrons to their entire satisfaction when you are called on. You must find a way of telling all your possible patrons of the stock and service awaiting their requirements, so that when they need anything in your line they will naturally turn to you instead of going to your competitor, who possibly is advertising cut prices just at that time.

One of the largest Chicago department stores has made its name a synonym for the highest quality of goods and satisfactory service, and no price bait offered by others can draw its customers away—and this has been done by dignified but persistent advertising—both newspaper and mail, and by living up to the promises made.

The right kind of advertising—telling your prospective customers of the advantages of giving you their business—is the key to success. This is the main thought to keep in mind, that advertising is simply a way of convincingly telling possible patrons of your ability to serve them.

It does not mean taking a little space in your local newspaper "to help the paper out" or buying space in church, charitable, or labor publications so as not to offend these organizations. It means a plan carefully thought out with the definite end in view of reaching those who should be your customers, in an effective way.

The first question to decide is the territory from which you could reasonably expect to draw business. Surrounding every city or town are smaller places, as well as the open country, that can properly be included in any plan of expansion. (This, of course, does not apply to the dealer in one section of a large city. In his case the best results

PART I. PREPARING THE GROUND.

[NOTE—This is the first of a series of three articles by W. B. Parker, who reserves all rights, describing practical methods the Automobile Dealer and Garage man can use in business building. Many men are unnecessarily limiting themselves as to the territory in which they can reach out for new business—and others are not getting the results they should, even in the limited territory they are attempting to cover. Each of these classes will find ideas in these articles that can be put into actual, immediate practice, and that if so used should prove "Cash-producing."]

will usually be obtained by confining his efforts to that section alone.) But, in either case, the idea should be to include all districts where there is a reasonable prospect of securing results.

The mistake most commonly made is that of not working up enough territory instead of too much. This does not mean that the entire territory decided on as the prospective field must necessarily be developed at one time. It is better to keep before the people of a small district all the time than to reach a larger district so occasionally that the cumulative force of the advertising is lost.

It is simply a question of the amount of money that can safely be appropriated to the purpose of business building, but where it is found advisable to so limit this amount that all the desirable territory can not be reached on the start, it is well to make definite plans for constant additions to the working field, as fast as finances warrant. Like success in farming, success in merchandising resolves itself into securing as much fertile ground as possible, and practicing intensive cultivation on all secured.

There are four methods of advertising generally accepted as valuable:

- Newspapers.
- Billboards.
- Hand-bills.
- Letters.

Billboard advertising is good as general publicity, where immediate returns are not demanded, and where the advertising appropriation is sufficiently large to use this method in addition to newspapers and letters.

Hand-bills may be valuable in some localities if used in connection with special bargain offers, but as a general rule are much less resultful than newspapers or letters.

Therefore newspapers and letters are all that are worth consideration as a

permanent part of a business building plan, and are all that will be considered in these articles. They are the seed that are sure crop producers.

While all newspaper advertising is good, some newspapers are more effective than others, and where the cost must be carefully considered, the circulation and quality of circulation of the various newspapers in the territory should be thoroughly looked into and space contracted for in only those papers that reach the largest number of the class of readers you wish to interest. Large circulation does not always mean circulation among a class who are likely to become your patrons even if reached.

Do not buy space because the publisher of the paper is a good fellow, but because you believe it has a sufficient number of the kind of subscribers you want as customers.

Many a man has convinced himself that "advertising doesn't pay" because, among other things, he did not use ordinary business judgment in buying it.

After the newspaper question has been decided the next thing to do is to make up a list of all persons you desire to interest so that it will be at hand when you are ready to add direct mail advertising to your newspaper advertising. It will be found cheaper in the long run to make up this list on cards in the first place, and to keep them in alphabetical order. It is much easier to note changes of address on a card list and keep it up to date by adding to it and taking out those who move away, than if the names are kept in a book or on sheets of paper. An up-to-date card list of this kind is a very valuable asset to any dealer. The financial responsibility of those listed can also be indicated, and by using two colors of cards the list can be separated so that those of good rating can be easily picked out when it is desired to mail to this class only.

URGE PROPER VENTILATION IN GARAGES

The Ohio state board of health is out with a warning against defective ventilation in garages. It reports a number of deaths from petrolitis or petrol poisoning, due to lack of fresh air in garages. Means for obtaining ventilation for even the smallest garages should not be overlooked, it is set forth. Oxygen is easily consumed in a garage when an engine is running. This danger is avoided if there is proper ventilation.

Gear, Differential and Transmission Repairs

Chicago, Ill.—Editor GARAGE EFFICIENCY: I will now try to give you my little story on troubles as I have found them. Suppose an owner comes in and says: "There is something knocking under my car." I get under to see if I can find anything loose. If not, I run the car around the block until I locate the trouble. I may find that the universal joints are very loose and all worn out because they were not lubricated after the car was bought. This causes the car to jump when starting and also acts like the clutch was grating. To repair this trouble I drop shaft right down and repair on bench. If enclosed, take tube and all out, and maybe the rear axle on some cars. You must plan the best way out of it. The blocks may be worn, or the flange may be loose on shaft or the bolts might have let go. All that I can say is that each case is different than others and you must be very careful when putting them up again. Be sure that everything works free and is tight and at the same time filled with grease. Also see that they are filled with grease about once a month and the grease cups about once a week.

Differential Troubles.

Next we will go to the differential, which you will find is very important in the running of a car. An owner comes in any says that his car growls like the dickens. Take a ride in it and locate the trouble and I find that the differential is too tight. We will say that the lock holding one of the adjusting screws let go. This is on a new car. Jack up car, take off cover of differential, take out all grease and see which lock is broken. If pinion gear lock is broken, by this I mean the small gear in the differential, and car howls, then the adjusting screw has turned pinion shaft so that it goes in mesh too deep and also puts pitch line out.

Take an adjusting wrench or a punch and bring it back so that the teeth of the little gear are in line with the back of the teeth on bevel gear. Get another lock or make one like it and run car while it is jacked up. If it has an even sound let it go at that, and see that everything is tight. Try the play in the big gear and see that it is good and free, then put cover on and try it on the road. If it works all right, put grease in and let it go.

How to Adjust a Differential.

When a differential adjustment goes bad sometimes it is easy and at other

times hard. To adjust, loosen lock nuts on differential sleeve; see that it has about $1/64$ " play to start and also line up pinion gear. After making the first adjustment turn gear at random and look for high spot on gear. The gear may be sprung and if you want to adjust it in this condition it is well to remember where it is. Get about a $1/64$ " play, then lock and try it. If it has a loose sound tighten it a little at a time until you get it quiet, but you can hardly get a sprung gear to run absolutely quiet, so if you want quiet gears take out and, if necessary, put in ones you know are true.

You can put gear in lathe to see if it will run true. When adjusting a differential do not move it too much at a time and be sure to run car after every adjustment. Be sure, also, that you have about $1/64$ " to start with and then you can either tighten or loosen.

A loud hum is a sign that it is too tight.

When it is loose you can hear the gears clash and then make a very loose sound when running and you let the car drift along.

Always be sure that your gears are the same pitch and never try to put an old worn out gear or a gear that is sprung very much to run with a new one, as they never run right. To save future trouble put in two new gears.

Then we have the owner who comes in and says that every time he goes around the corner his car makes an awful noise. This you will find inside of the differential. Maybe the owner got a broken stud or a spider inside the housing of the small gears. They may be broken or worn out, or there may be a piece of metal between the teeth and the car goes to the right or to the left. A car knocks pretty bad if a piece of metal gets between the small gears. Or it may not be a knock. It may be a heavy grind or groan, caused by worn parts, by housing bolts giving away or by nuts working loose.

Repairing Gears.

To repair this you must take out the differential and when you get it out you might as well look over everything, such as bearings, bushings, gears, axle shafts and everything in general on rear axle.

It is well to remember there are three styles of axles, known as "Full Floating," "Semi-Floating" and "Three-quarter Floating."

It is easy to work on a Full Floating or Three-quarter Floating, as all you

have to do is to take out shafts and differential, but on a Semi-Floating axle you must take out the rear axle to work on it. That is why I say fix it up right when you have the opportunity.

Do not be too positive about telling someone what ails his differential, as the best of us get fooled at times. You might say the bevel gear is sprung and when you get in there you find things just opposite to what you say. I've been up against it myself.

I told a man that there must be a piece of tooth broken and lodged between the gears. Here is what I found: The pinion gear worked loose. There were two key slots in the pinion gear next to each other. The keys were fit loose, I suppose, and when the pinion got to working hard it just broke out the two keyways and every time it came around, I suppose, it jammed and one of the teeth of pinion broke. Only a little piece got in gear but the rest of it got in among bearings and chewed them all up. So I had to put everything new in there.

The hard part of it was the man had just had the car overhauled about a week before.

Different Keys.

If you happen to have a semi-floating axle and all of a sudden you stop and you cannot get started again, when you put car in speed you will find you have sheared a key in differential or at wheel. If inside, you must take out axle to repair. If outside, take off wheel to see which one it is. Get another keyway milled at any machine shop and that will take you home and then get a new shaft put in. But if your car has a semi-floating axle you might just as well get another shaft and put it in, because you must take the axle down to get at this differential so have this work done at once and if necessary wire for the parts.

Broken Wheels.

If you break a wheel out in the country and cannot get a dolly, get a good-sized beam, jack up car, fasten one end to axle where wheel is broken and the other end to frame and cross member and have some one pull you in.

Locating and Eliminating Noise.

Now then we have some more noise. The only way to locate these is to get under the car and take a look. If you only get them on rough roads they may be caused by spring saddles, shock absorbers, radius rods, torque rods, spring bolts, shackles or loose body.

If spring saddles, take off lower half and file it off a little and try it, then do the same with the other one.

If shock absorbers are responsible, make a new one out of any kind of flat stock and put on your wheel and go on. This is caused by a grating clutch, or the wheel was not tight enough, or never fit right.

Full Floating and Three Quarter Floating Axles often shear their shafts in differential square.

On a Full Floating axle take out both shafts and get a long rod and knock out the piece. Get a new shaft, put it in and you are o. k. again.

In case the car has a Three Quarter Floating axle you must take off both wheels, get out axle lock and take out shafts. These troubles are also caused by clutch, or it may be a poor grade of steel, so if an owner comes in and says he just stopped and cannot get started look for this kind of trouble as you never can hear when the shaft lets go.

Sheared Gears.

If there is a lot of noise look at the gears. I have known cars to shear keys next to wheel and the man kept spinning shaft until wheel took hold. That is all right to get in but you ruin your hub center and must get a new one with the shaft.

Another trouble is to locate rattles on rod. You must get under the car and try out all of these spring saddles, shock absorbers, body bolts, radius rods, torque rods, spring bolts and shackles and bushings.

If there is trouble in a spring saddle take off lower half, clear up and file it until it just fits. To do this put a thin layer of grease on tightening up and if it fits you will see grease come out of sides.

Shock Absorbers.

If noise develops in shock absorbers take apart and see what is wrong, remedy it, put in parts, grease and put on again.

Radius rods and torque tubes may require new pins or bushings, the spring tension on torque rod may need adjusting, springs may be broken or the ball may be worn out of round. In the latter case do nothing unless you get it out and file it round or get a new one.

Spring bolts and shackles may be worn from want of grease or the bushing may be worn. To get these out you must jack up the frame until you can turn bolts freely. If bolts are worn, put in new ones. If bushings are worn try to put them in without taking off spring. You can do this by holding a piece of heavy metal on one side and pounding on the other. If that does not do the work get a long bolt, a washer that will just fit the bushing and a piece of tubing that will go over the bushing. Then take a piece of flat stock, bore a

hole in it the size of bolt, put the washer against head of the bolt and put bolt in bushing, large bushing over bushing hole, flat stock on large bushing, then put on nut and turn the nut and bushing will come out. If it is very tight tap it a little with hammer.

You can also put in bushing this way but you do not need large bush for putting in bushing. When putting in new bushing if soft be sure to ream it out after forcing it in that way, or pounding it in. If hard take a piece of fine emery cloth and clean out or emery down the bolt.

If out in country and you should happen to strip your differential gears open differential and take out big gear or just take out both drive shafts and have some one pull you in.

If you break a spring get a block, fasten it to axle securely and drive in. Be careful and you can come in all right.

Ignition.

Now then we will go to ignition again. Lately cars have come into our place which seemed o. k. but the engine boiled. These are new cars. After looking them over with regards to timing I found that the spark was very late. So I put engine on center, took cover off of distributor and reset the breaking points and the car was o. k. again.

I have found this to happen on Delco system very often. You can always tell that the engine runs late by the sound of it. It always has a loggy sound. When

you advance the spark you do not get much speed. If the spark is very late it will spit back and that is always a hint to look for this trouble or an open valve and no gas to carburetor. The best way is to check all three of them up and you will not have much trouble locating this.

Sparker Troubles.

Another thing about the Atwater Kent system on their unit sparker. It seems they have a lot of trouble with their breaker points, they either burn off or work loose and pull off and then they have no spark and the car cannot run.

It does not seem to come off the screw point but comes off the vibrating point always. I would advise carrying an extra one when starting on a long trip as you never can tell when you will need it. They are both good systems only they have their faults.

Another thing I notice is that we are having more spark plug trouble than we had a couple of years ago. It seems that every other plug you get has a dead ground. By this I mean you can get a plug with the wire on it and you will not get a shock. This is caused by the plug getting full of carbon preventing it from grounding itself as it should. To make that plug live you must take it apart and clean off all the carbon and oil. Also clean the points. When nice and clean put it in and it will fire all right if not cracked.

CHARLES EHARDT.

Building and Maintaining an Efficient Garage Force

GROSSE POINTE, (Paye P. O.,) MICH., June 6.—Editor GARAGE EFFICIENCY: The attached gives some of my trouble in condensed form. I do not know that they are any different from those of other garagemen. I am only showing them up in a different light.

I have always been a believer that before we could overcome any trouble we must locate the cause and overcome that first.

My analysis of the accompanying table leads me to the conclusion that our present troubles are due to the fact that in the past garage operators have been very lax in disciplining employees, and have not demanded efficiency in any form. The result is that a very inferior lot of men (men who are simply drifters) are practically the only ones we have to pick from.

I would like the opinion of some one else in the matter.

BEAN & SIEGERT,

F. A. BEAN, Manager.

ORGANIZATION.

The figures given below will show some of the trials of a manager in trying to perfect an efficient working organization as well as the unreliability of garage help and the general cause of failure in the employees.

The figures given cover a period of three years.

We realize that the rules governing our employees are rather strict, but we believe they are none too strict to secure results. A willful infraction of any rule means dismissal. Every man's references are looked up so far as is possible. Foremen are required to furnish surety bond in the amount of \$1,000.

No man is ever placed on the pay roll who is known to ever use liquor in any form.

Men who are required to drive cars outside of the building must hold a state chauffeur's license.

Salaries have ranged as follows, depending on the ability of the employee,

time of year and conditions of the labor market.

Day foreman	\$18.00—\$25.00
Night foreman	18.00—21.00
Bookkeepers	18.00—25.00
Ass't Bookkeepers	10.00—15.00
Repairman	16.00—21.00

Drivers	16.00—21.00
Washers	16.00—21.00
Polishers	12.00—16.00
Porters	10.00—15.00

Of the nine employees promoted by us to better positions only three have made good.

	Still employed	Total number employed	Reasons for leaving				positions for which hired.				Time employed by days.		
			Promoted	Left city	Left to better position	Left to enter other business	Left on account of illness	Left without giving notice	Discharged	Use of liquor	Incompetent	Discourtesy to customers	Average
Day foreman.....	1	6	0	..	3	..	2	..	..	..	..	..	221
Night foreman	2	13	0	..	1	..	..	..	2	1	4	1	88
Electricians	1	1	0	..	..	..	..	..	..	..	..	..	1,095
Bookkeepers	1	6	0	..	2	1	..	..	2	..	..	..	99
Asst. bookkeepers and stenog.....	1	6	0	..	2	1	..	..	2	..	..	..	99
Floorman	1	6	0	..	2	1	..	..	2	..	..	..	99
Drivers	5	39	3	1	6	3	2	2	7	1	1	1	40
Repairman	1	54	3	1	2	..	5	6	8	..	2	20	23
Washers	1	54	3	1	2	..	5	6	8	..	2	20	23
Polishers	2	36	1	..	..	..	..	5	11	1	2	11	13
Chamoisiers	1	16	2	1	1	..	1	1	..	4	4	..	24
Porters	1	16	2	1	1	..	1	1	..	4	4	..	24
Total	14	171	9	5	15	4	10	14	30	3	13	41	1

This table covers a period of three years.

facilitate collections on installment plan selling.

EARLY REPORT OF THE \$223,000,000 MERGER

One of the largest mergers in the history of commerce has been announced at Detroit. It will cause the automobile industry to rank next in order to the steel trade, as only the United States Steel Corporation will have a larger amount of stock.

The Willys-Durant merger of four automobile companies, with a substantial interest in a fifth will start off on the basis of \$223,000,000. This much has been settled, although no name has been found for the second greatest industrial combination which the United States has produced.

The company, which represents a union of the Willys-Overland, Hudson, Chalmers, Auto-Lite and United Motors Corporation, the latter a combination of five accessory companies, which will supply parts for the cars made by companies in the merger, will make its debut with \$73,000,000 of 7 per cent preferred stock and 2,500,000 shares of common without par value. As it is proposed to sell the common stock to the public at 60, the capitalization represented by this stock is \$150,000,000. The parent company will not be cramped by its capital limitations, however, if the management decided to expand for the charter provides that the number of common shares may be increased to 4,000,000, which at the issue price would make the total capitalization \$313,000,000.

Another Consolidation Rumored.

There are rumors of a possible combination including the Chevrolet, General Motors, Packard, Edmunds & Jones and a number of accessory manufacturers. The Timken company may line up with either the Willys-Overland or the Chevrolet group and it is claimed it is even possible General Motors, the Chevrolet group and the Willys-Overland group may enter into working agreements which will be almost the equivalent of a single combination.

The reason for these suggested mergers is to be found in the abnormal state of the raw material market. Every large manufacturing concern this year has suffered more or less severely owing to the unexpected rise in the price of steel and many other commodities. It is felt, therefore, that the best insurance against fluctuations in the cost of raw materials is either for the automobile plants to establish steel mills of their own or to form combinations of such strength that they can take over existing steel mills, thereby absorbing them into the merger virtually, if not actually.

Mergers and Rumors of Mergers in the Automobile Industry

MERGER REPORTED ALL "OFF."

The \$223,000,000 automobile merger proposed by John N. Willys and called for the sake of convenience the American Motors Company has been abandoned and the four proposed constituent companies—the Willys-Overland, Hudson Motor Car, Chalmers Motor Car and Auto Light companies—will continue as independent corporations.

There were many explanations offered, ranging from the assumption that bankers frowned on the deal to gossip that the Hudson interests held out for more than \$800 a share and were told \$800 was too much and all that could be offered and that a new merger is to be formed shortly to include Maxwell in place of Hudson.

A more plausible reason offered by those who subscribed liberally to the new offering and have been to a limited degree in the confidence of the bankers concerned is that there could be but one king in the automobile world and both Willys and W. C. Durant aspired to the throne.

None doubts the Willys merger was to have been but a step toward the amalgamation of the Durant and Willys interests into a giant corporation second only to the Steel Corporation. The Willys merger was promoted by the co-operation of the two men. The bankers

were the bankers to Durant also. The Willys Company was to acquire control of United Motors, the big accessory corporation recently formed and dominated by Durant. The Auto Light Company of the Willys merger had a contract to furnish lighting and starting systems to the Chevrolet Company for three years and was negotiating with General Motors, both of which are controlled by Durant.

The Willys combination was to have had a capital of \$73,000,000 in preferred, all to go to pay for constituent properties and 2,500,000 shares of common of no par value. In view of the fact that the common was largely if not oversubscribed at \$60 a share, the common capitalization amounted in the market to \$150,000,000. Handsome profits were snatched from the underwriters, who took the stock at \$54 and sold it at \$60. The shares had sold "when, as and if issued" on the curb at from \$60 to \$65.

It is possible Willys may form a new company of his own. He had planned previously an amalgamation of the Willys-Overland with Fisk Rubber and Guarantee Securities, both of which he controls, and possibly a truck company, such as Reo Truck and Continental Motors. The Guarantee Securities was formed as a selling agency to take the notes of dealers and purchasers and

The situation at present is the existence of the General Motors Corporation, of which W. C. Durant is president, the United Motors Corporation, of which W. C. Durant is president, and the new corporation merging the Willys-Overland, etc., of which John N. Willys will be president. It is believed that there will be at least a close working agreement between the new Willys merger and General Motors. If this proves to be true it will mean that W. C. Durant and John N. Willys will jointly control the great bulk of the automobile business of America.

PART MAKERS PLAN

BIG MERGER

Announcement comes of the completion of plans whereby several large parts makers in other lines located in Detroit and vicinity are to combine under the name of the Motor Products Corporation, with 100,000 no-par-value shares and with W. C. Rand, head of the Rands Manufacturing Company, as the president. Incorporated under the laws of New York and with a main office in New York City and headquarters in Detroit, this corporation, as at present outlined, takes in the Rands Manufacturing Company, the Vanguard Manufacturing Company, the Diamond Manufacturing Company and the Universal Metal Company, all of Detroit, and the Superior Manufacturing Company, Ann Arbor, Mich.

The Rands Manufacturing Company is a large concern making at the present time windshields, tops and steering wheels, having begun this activity in 1900.

Vanguard make a specialty of windshields and has been located in Detroit for about three years, during which time it has shown rapid growth. The Diamond Manufacturing Company makes metal stampings, such as radiator fittings, radiator shells, hubs, hub caps, manifolds and tubing. The Universal Metal Company is in a similar line, having a large tube mill and making a variety of metal parts as well. The Superior Manufacturing Company is a big windshield maker, besides doing business in other accessories necessary to motor vehicles.

The stock of the new \$10,000,000 holding company will be put upon the market very soon. It is said to have been heavily oversubscribed, there being 100,000 shares of no par value.

It is planned to build a large drop-forge plant and to add a screw machine department, so that in the end windshield making will only be about one-third of the concern's total activities. Later it is intended that the somewhat scattered plants are to be brought together in one very large institution in Detroit. Some of the concerns in the combine have

Canadian plants and these will be concentrated eventually to adequately care for business across the border.

The stock of the corporation was offered for subscription at \$74 per share. Of the total 70,000 shares, 20,000 shares were given to holders of the stocks of the five companies that constituted the merger in part payment for their holdings, leaving 50,000 shares that were purchased by the underwriting syndicate.

ANOTHER AUTO COMBINE.

An automobile combination which is expected to bring together fifteen of the

largest automobile manufacturing corporations in this country is reported in Wall Street. None of these companies up to this time have been mentioned in connection with any other automobile merger.

This company will have a capitalization of \$75,000,000. H. F. Vortkamp and Charles B. Neal are mentioned in connection with this corporation. Mr. Vortkamp was for many years private secretary to Henry Ford and also served in an executive capacity with the Ford company. Western capitalists are said to be interested in the organization of the new corporation.

The May Log of the Chicago Garagemen

Meetings of the members of the Chicago Garage Owners Association largely are business conferences. Subjects of interest are brought up for consideration, are discussed, disposition is made of them, if possible, or a progress report is made and the matter continued.

At the May meeting it was suggested that the members subscribe for the credit information service maintained by the Retail Trade Association. The cost ranges from \$6 to \$12 a year. Special reports on customers can be secured for 50 cents each.

Bookkeeping Aid.

President Halbert called attention to the accounting aid that the secretary's office is ready to give, stating that a system could be installed and maintained without employing a clerk for the work. One member stated he had availed himself of the service and that it was all right in every particular.

Emphasis was laid on the fact that too many garage operators are not keeping close enough track of costs.

A resolution from the board of directors announcing the discontinuance of the monthly meetings of the several divisions was read and approved. It was brought out that these meetings were not being well attended and instead of the regular meeting, special meetings will be called to consider important subjects.

Meters for Rented Vehicles.

Attention was given to the ordinance now pending before the city council calling for the equipment of all motor cars, offered for hire, with meters. The Parmelee Company is fighting the measure. The question was referred to the Motor Library Division for further attention.

What the Organization Is Doing.

Mr. Fowler—I want to compliment this organization on its methods of working. Your affairs are conducted like a directors' meeting of any business institution. I cannot see how the members can stay away. One thing that impresses me is that the men here seem to be successful garagemen.

I have occasion to visit garages and I find a great contrast between the men who are conducting their business in the right way and the fellows who are trying to get by in some way, they don't know just how. There is a difference between the character of business conducted by the men who belong to this association and those who do not belong.

Take some of the smaller garages and they are garaging cars at \$8 and I know of one or two cases where the rate is \$7 a month. They are working for the landlord, and having a hard time keeping him paid up.

Following this talk and after a brief consideration of several other matters, the meeting adjourned.

ILLINOIS PROGRESS.

Will S. Hammon has been engaged by the Garage Owners' Association of Illinois to canvass the state in behalf of that organization. Mr. Hammon is an experienced business and association man having been one of the important factors in organizing and maintaining the Western Retail Implement Dealers' Association, with headquarters in Kansas City.

Mr. Hammon is a salesman, having for fourteen years been associated with the sales department of the Kingman Plow Company. He is enthusiastic over the work of organizing the retail automobile interests. At present he is centering attention in the central eastern section of the state.

TO MAKE WIRE WHEELS.

The Hayes Wheel Company, Jackson, Mich., has decided to manufacture the wire type of wheels along with its wood wheel production. The general selling agent for the Hayes wire wheel will be Castle & Kyte Company, Detroit. The latter is a new organization, composed of F. E. Castle, well known in the trade as the head of the F. E. Castle Company, and H. W. Kyte, former assistant general manager of the Houk Manufacturing Company of Buffalo.

Planning a Greater Electric Vehicle

**Place: South Room, Metropole Hotel; Time: 12:
Profitable Electric**

YOU ARE INVITED.

Every one connected with the sale, equipment and care of electric vehicles in and around Chicago is invited to attend the meeting called for June 27, noon, at the Metropole hotel, 2300 South Michigan avenue, Chicago.

This is a call to get together, to quit kicking, to stop trying to put all the blame on the other fellow, to shoulder your share of the responsibility for existing conditions and to do your part to rebuild the industry on a broader, more satisfactory and more profitable basis.

This is to be a meeting of equals. It is not necessary that you belong to any association to participate in the deliberations.

The meeting is called by and will be held under the auspices of the Chicago Section of the Electric Vehicle Association.

Be sure to come and be sure to BE PROMPT.

A meeting of all interested in promoting the sale, equipment and care of electric vehicles in Chicago and vicinity has been called for June 27, 12:30 p. m., at the Metropole hotel, 2300 South Michigan avenue, Chicago.

This first announcement of the meeting will be followed by a call by the Chicago Section of the Electric Vehicle Association.

Everyone interested in the sale, equipment and care of electric vehicles is urged to attend.

Rubbish to be Destroyed.

All the outworn rubbish of personalities should be destroyed by those who attend this meeting before they leave home.

The plans underway call for completely ignoring the past.

But in no sense is the meeting to be of a negative character.

With the materials, the information and the knowledge possessed by all identified with this industry it is planned to rebuild the electric vehicle interests of the second city of the United States.

An inspection committee, to be chosen by the convention, will pass on the character of the material and the structural value of all ideas which are proposed for use in the new structure.

All Invited to Participate.

The idea of getting together, of burying the past and building for the future was proposed by the editor of GARAGE EFFICIENCY. The question was discussed with men

prominent in all branches of the business, garage operator, battery manufacturer and distributor and car manufacturer and distributor.

While opinions respecting details showed some variance, the entire trade expressed a common desire to get together and place the business on a more substantial, satisfactory and enduring basis.

After sufficient sentiment had been developed to insure the success of this undertaking the ques-

tion of how and by whom the gathering should be called was encountered.

Inasmuch as the E. V. A. officials have been working on this question for several years that organization tendered its good offices and the meeting will be called and held under its direction.

It should be remembered that this is to be a massmeeting of all interested in the real success of the electric vehicle industry and all so connected are entitled to equal rights to the floor and to full participation in the deliberations out of which shall come a bigger, a better and a more prosperous electric vehicle industry.

Strictly a Business Session.

This is to be a meeting of business men for strictly business purposes.

There will be no flub-dub of oratory.

There are no lengthy papers to read.

There is no past to be resurrected and debated.

There is no other purpose before the meeting other than that for which it has been called, viz., to build a better electric vehicle industry, one that is more pleasing and profitable to all identified with the sale, equipment and care of

You Will Be Asked to Sign This

We, the manufacturers of electric vehicles, batteries, tires, and operators of electric garages, desiring to aid in bringing about conditions that will be more satisfactory to all engaged in the sale, equipment and care of electric vehicles in Chicago and vicinity, pledge ourselves to attend a meeting to be held June 27 at the Metropole Hotel, and to do all in our power to establish methods of handling the business that will be equitable and profitable to all concerned.

Further, we agree to study all phases of the questions to be presented in the June number of GARAGE EFFICIENCY and to do our utmost to bring about needed changes to the end that harmony of opinion and unity of purpose shall prevail.

Industry for Chicago and Vicinity

**Tuesday, June 27; Subject: Building a Better and More
Electric Vehicle Industry**

electricians in Chicago and vicinity.

Under such conditions it should be relatively easy to reach an understanding on which the business can be conducted in the future for the good of the industry and for all identified with it.

A Warning

The invitation given is limited only to those who are actively interested in the electric vehicle business.

If you are absolutely satisfied with your business, if you do not care to have it improved in any way, if you think you are getting the best of it in every way, you are not wanted at this meeting.

On the other hand, if you have an idea, a plan or a suggestion to

make, get it in shape and bring it along with you.

Every idea will be studied, every plan scanned, every suggestion will be weighed and in the end we will put the electric vehicle industry above the reproach of any one connected with it in any way.

A Further Word.

A great many men have been giving a great deal of thought to this question.

A number of plans are now being considered, but those who attend will not be asked to endorse a set program. It is not a ratification meeting.

It is an opportunity for you to express your wishes and to aid in

remodeling this industry of yours to meet your ideals and needs.

The thing for you to do is to be there.

GREATER GARAGE SERVICE.

Relationship between the electric garages of Chicago and the manufacturers of electric vehicles leaves much to be desired. So much of personal feeling and opinion has been injected into situation that the real issues are not receiving the consideration they merit.

Garagemen make somewhat sweeping assertions which are almost flatly contradicted by the manufacturers of electrical vehicles. The outcome is a species of trench warfare with the resulting deadlock which prevents either faction from showing the progress of which both are capable and which early would attend unity of effort for the common good.

Harry Salvat, of the Fashion Automobile Station, Chicago, presented a paper on "Greater Garage Service" before the Electric Vehicle Section of the National Electric Light Association, whose annual convention was held in Chicago May 24 to 26, inclusive.

The most able comment on the paper delivered by Mr. Salvat is the paper itself, which follows:

GREATER GARAGE SERVICE.

By Harry Salvat.

We all know that the electric car is more nearly fool-proof than the gasoline car and is unquestionably the vehicle for city use. Plenty of proof can be offered to substantiate this claim. The fact being conceded—why is it that we do not have more electric cars, both passenger and commercial, on our streets? It is the judgment of the writer that one of the principal reasons is that manufacturers are making no effort to cultivate and hold the best business "boosters" they can hope to have, namely, the public garages.

It might surprise you to learn that there are not more than three garages in the city of Chicago taking care of electric cars that are friendly toward them. Why? Simply because the manufacturers' representative knocks them every opportunity he gets with the very natural result that the garage man only takes care of an electric car until such time as he can replace it with a gasoline car.

Knocking the Electric.

Very recently I called at a garage where about thirty electric cars and forty gasoline cars are garaged. While I was there the owner of an electric car came in and a conversation with the garage owner ran as follows:

Customer: "Hello, Ed. A nice day."

You Are Invited

For some time the differences between the manufacturers of passenger vehicles and the garage interests seemed to tend in divergent directions. To every thinking member of the industry it is apparent that the various interests should be brought together and their interests consolidated.

In order to get a comprehensive view of the situation, Electric Vehicle Section of the National Electric Light Association arranged for a presentation of the facts at their annual Convention at the Auditorium, May 24. The case of the garage interests was ably set forth in a paper, entitled "Greater Garage Service," read by Mr. Harry Salvat of the Fashion Garage. The viewpoint the vehicle manufacturers was very clearly and ably brought out in a discussion of the paper by Mr. Gail Reed, representing the interests of the manufacturers.

Both sides of the differences, both real and fancied, were made so clear that it encouraged the officers of the Section to undertake a general clearing of the situation. To that end a committee was appointed, composed of Mr. Gail Reed, Chairman, Mr. D. E. Whipple, Mr. Harry Salvat and Mr. T. Milton.

At the meeting June 27 the report of this Committee will be presented and formal action by the Section will be taken on their recommendations.

It is hoped that every member of the Electric Vehicle Section will be present. All those interested in the electric vehicle or the garaging of them—not members of the Section—are cordially invited. It is hoped that everyone will take a live interest in helping to improve the conditions now prevalent in Chicago to the end that all may enjoy more general prosperity.

Garage owner: "Yes. Splendid day for a trip in the country. Why don't you sell your 'juice-box' and buy a nice touring car?"

I was greatly surprised. The electric car owner left the garage feeling as if he probably were foolish for not procuring a gas car in which he could enjoy long country runs. After he departed, I asked the garageman why he had spoken to his customer in that manner and he replied: "Harry, if I could trade all my electric boarders for gasoline cars, I would give three to one." I asked what the trouble was and he stated that he made money on his gasoline cars on the sale of gasoline, oil, supplies, etc. Also, that if he had a gasoline car prospect and 'phoned some dealer in regard to it, or just gave the dealer the name of the prospective buyer and the dealer was fortunate enough to sell the party, he could always expect a check for being a good fellow and recommending that particular car. With the electrics it was an entirely different problem. With every electric car boarder he had, he stated he received a ticket to H— with it.

I questioned him with reference to this and he then took me into his office and brought out a bunch of reports sent him by the electric car manufacturers which would stagger an elephant. Most of them were letters he had received after a car had been down to the manufacturer's for inspection and they read as follows: "Battery sulphated; should have long overcharge." "Not sufficiently charged." "Grease cups not turned." The fact is that although the car goes to the manufacturer once a month for inspection, for which the car owner pays \$3 a month, the grease cups would rust if they were not turned and filled by the garage man. Another report which is continually received and which is absolutely absurd reads as follows: "Tires not sufficiently inflated—right rear 80 pounds; left rear 70 pounds; right front 68 pounds and left front 72 pounds."

As a matter of fact the tire companies only recommend 70 pounds all around and the garageman watches this pretty closely. However, imagine a lady receiving these reports monthly. She begins to believe that her car is being ruined by the garage man when really these reports are so trivial that they are of no importance whatever. They merely irritate the car owner. Eventually, from various conversations with friends, the lady finds out that those owning gasoline cars never receive any of these reports and she comes to the conclusion that these cars are receiving splendid care at their garage. The result is that she feels that her electric is too delicate and requires too much attention.

Boosting the Garage.

Further, the gasoline car manufacturers are boosting the garage men every chance they get as to the sale of supplies, etc. They even go so far as to advise their patrons to buy their gasoline from the garage owner and not to patronize the filling stations and tire brokers along the road.

With the electrics, however, it is just the opposite. In my opinion the electric car manufacturers and dealers simply keep up this inspection system so as to be able to keep in continual touch with the cars they have sold; trying to keep the owner supplied with batteries, tires, etc., perpetually. In some instances where car owners are keeping their cars in a garage where all kinds of repairing, painting and supply work is being taken care of and the manufacturer has no chance to do business with him in that regard, the manufacturer, when he gets a chance, recommends some other garage to the car owner where no repairing is done or supplies sold, feeling that by so doing the work will again come back to his (the manufacturer's) shop. Whether the owner's car is receiving the best of service and attention does not seem to interest him in the least.

Knocking the Garage.

If the garage owner should be fortunate

enough to be able to sell one of his patrons a set of batteries or some tires, he never hears the end of the story because each and every time the car is sent down to be inspected by the manufacturer a report is made that the car rattles, the paint is cracking or the car runs slow; it runs either to the right or left, in fact, any way but the way it should. These reports are kept up until the garage owner either loses the customer or the car owner trades in his old car.

You can readily see that when a car owner continually receives these reports and has to take them up with the garage owner, who, knowing where the trouble really lies, contradicts the reports of the manufacturer and argues with the customer trying to show where the reports are wrong; that the customer becomes quite discouraged with his car and the first thing you know he trades his electric for a gasoline car.

The Solution.

Now then, what is the solution? First make every garage owner a friend of yours, co-operate with him every chance you get. Do not touch a battery or tire sale on a car that he is taking care of, as this is his business, not yours. If he makes good, you will do better. Remember, that if the electric garage man does not do well and is not successful, the manufacturer will go broke. The electric garage is the stomach for the food that you assimilate. If the stomach is in bad condition and not doing its work properly, you will look pale and not feel very strong. To improve it, you will have to find out where the trouble lies and see what your stomach can best digest. In other words, it is up to you manufacturers to wake up. Become friendly with the electric garage men and co-operate with them, then you will see that better conditions will prevail in the electric field. It is no more than natural to believe that as long as the electric garage man is not being treated properly by the manufacturers, he is not going to plug and work to help the electric vehicle business.

Another thing—the electric car receives no publicity in Chicago whatsoever. You can read the papers and magazines until the cows come home but you can never find a write-up or advertisement stating what some manufacturer or agent is doing with the electric car.

Get Together.

Now, gentlemen, get together. The old saying is that two can do more than one, three more than two and four more than three. Consequently, let us all work together.

As for myself, I feel that I am getting my share of the business, but I feel very sorry for the little garageman who is being put out of business. Every time an electric garage is put out of business or changes to a gasoline garage, it is one spoke broken in the wheel upon which the electric vehicle business rides. I know and you all know that there have been a great many spokes broken and I feel it is now up to us to get together and repair these broken spokes and get some new wheels for our good prosperous business.

Electric Garage Mortuary.

The following are among the garages that have gone out of the electric garage business lately, either having gone out of business entirely or changed from Electric to Gasoline:

Washington Park	Ardmore Garage
Electric Garage	Anderson Electric
47th Street Garage	Garage
Lexington Garage	Buena Park
Birchwood Garage	Garage
Down Town Garage	Harry Kitchen
Victoria Garage	Dewey Garage
Independence	Dickover Garage
Boulevard Garage	Woods Electric
Owen Fay	Garage
20th Century	39th Street Elec-
Garage	tric Garage
Babcock Garage	Royal Garage
Euclid Bros.	Metropolitan
Birk & Brown	Garage
North Shore Garage	

And many more not mentioned above.

Working as a Unit.

In order to improve existing conditions I feel it will be necessary for the garage men, manufacturers, dealers, tire men and battery people to work as one unit. It will be necessary for the manufacturers to encourage the garagemen to take care of their vehicles for them and do away with some of their present business tactics.

Anybody can run a gasoline garage, but it takes an intelligent man to operate an electric garage successfully.

I want to impress upon your minds that sites for garages are becoming very scarce. As it is now a man new in the garage business will take care of electric cars until he receives a few reports from the manufacturers which simply advise him he does not know how to pump up tires, etc.—then he will not only be glad to get rid of the electric car business, but will get out his little hammer and begin to knock the electric car business as much as possible.

Make the Garage Man Your Friend.

This can be remedied by allowing the electric garage man to live in peace instead of fear. Make him your friend so he will recommend and boost your car. If he is successful in assisting you to sell a car be willing to pay him for it. Then, too, help him and see that his profit in taking care of an electric car is just as large and larger than by taking care of a gasoline car.

You know if you had a small store and sold sugar of which you had two grades and on one you made a profit of 2 cents a pound and on the other lost 1 cent and got a black eye besides, I wonder which one you would recommend and try to sell. It's the same with cars. Therefore, you must assist the electric garage man so as to increase his profit, which will naturally help the electric business.

Garaging an Electric.

The following will give you some idea of the work outlined for an electric garage man in taking care of an electric as compared with the work of a gasoline garage man:

The electric garage man receives a flat rate of either \$35 or \$40 per month for his cars; the late model cars are built with large batteries consuming a large amount of current; they have wire wheels; some of them carry an extra wheel which must be taken care of; the cars have three mats—a rubber mat, a fur mat and a mat to harmonize with the beautiful upholstery of the car. These mats must be taken out and cleaned every day and the way they are made up it is not the simplest matter in the world to replace them. If you happen to have a new man on the job, it is almost necessary to have a blueprint made up for him with directions showing how they are to be put in the cars until he becomes familiar with the work. The mat must be placed around the two drives in the car; two revolving seats; two foot brakes; meter buttons and exhilarator buttons. Then he must see that the wheels on the car are tight and in good order; that the tires are pumped up to 85 pounds and then make sure of it. This must be done for two reasons: if he has 20 or 30 cars with tire pressure low, it means that the cars will pull two, or three more amperes to the current and if he runs along that way from month to month he will find that his profits are going to the power company.

After all of this the car must be polished up beautifully. Everybody must admit that Chicago garages keep their electrics cleaner and more beautiful than any other city in the United States and the poor garage owners do not even get credit for it.

Deliveries.

Then we must deliver the cars anywhere from one-half mile to three and one-half miles and get there as quickly as possible after being notified. No damage must be done; no mud splashes on the fenders and then if you are lucky enough to reach the house about 8:30 or so you can take the children to school if you please, or take Mr. Jones or Mr. Smith to the elevated train. It will take only about ten minutes

or so. The hiker has nothing to do anyway but wait for calls, so Mr. Jones may just as well make use of him as not while he has a chance.

On about 25 per cent of our deliveries we give the hikers carfare for the return trip. Otherwise, you will find them examining all the store-fronts along the street as they return. That takes care of the morning delivery. In the evening after the car has undoubtedly been used most of the day and done some good hard running, it is most likely that the owner would like to take a small run either to the theater or probably to play a little game of pinochle, say, about five miles or so from home; the car will make this run easily, but the owner wants to feel safe. The garage man, therefore, gets a nice telephone call asking him to please send for the car, give it a little boost and return it to the house in about an hour or so. It is necessary that we again call for the car, paying another car fare, taking chances of damaging the car. After the car comes in it must be put on charge (and it is usually during the peak hours and, believe me, it hurts to have to pay \$15 a kilowatt for current consumed between 4:30 and 8:30) and then we must re-deliver the car.

Damage in the Shopping Districts.

Then another thing. The ladies take their cars downtown and leave them in front of stores in the shopping district where it is necessary that they be moved every half hour. They instruct the doormen at the stores to watch the cars for them and move them when necessary. Very often in so doing the cars are bumped, bending fenders, breaking head and tail light glasses, etc. Of course, the owner does not inspect the car upon her return and does not know whether or not any damage has been done. Consequently, when the garage notifies the owner that repairs are necessary she knows nothing about it and complains that the damage must have been done in the garage or by our man delivering or calling for the car.

No argument can convince her that we are not to blame and the consequences are that we must make the repairs without being able to charge for it.

I could write for three days explaining the troubles of an electric garage man and, after all he must put up with in taking care of electric, the manufacturer does not even seem to want him to make a living out of it.

Manufacturers Have Tried Operating Garages.

This is not because the manufacturer is not familiar with conditions, for almost every electric car manufacturer has operated an electric garage at some time or another, but has always given them up as a bad job.

Ninety per cent of the electric garages which have gone out of the electric business, were forced out simply because they could get no support from the manufacturers. These men who are switching from electric to gasoline are not going to do the electric business any good as you can readily see for, naturally, they are going to talk and push gasoline cars so long as they handle them.

It is entirely up to the manufacturers to regulate these conditions. Their contracts with their agents should stipulate that tires, batteries, etc., should not be handled or sold by them to car owners who keep their cars in public garages. Also that if the garages do not happen to handle supplies of any kind, a tire or battery sold should be billed through said garage so that in that way the garage man could make his share of the profit just the same.

I feel sure that if you manufacturers will get together and do this you will release the brakes on progress and will find that the electric car will get its share of the business.

I think you will also find that this will eliminate a great deal of trouble for the car owner on adjustments of tires and batteries. He can deal simply with one party and not have to go from the dealer

to the garage man and the garage man to the dealer.

Unreasonable Battery Guarantees.

The battery guarantees the dealers are giving are unreasonable and naturally invite trouble. They actually remind me of the faker selling on the corner "Now you see and now you don't see." The idea of giving a car owner a guarantee on a battery which you know cannot be fulfilled and simply have the idea in mind of beating someone else is outrageous.

Now, gentlemen, this is not an article on engineering or improving of electric cars, simply an appeal to you for the future of the electric vehicle business by which means I and a great many of you are earning a living.

We have the goods to sell and the people want them, only we don't seem to know how to feed the "goose that lays the golden egg" and, believe me, the garage is the goose that lays the golden egg for the manufacturers.

It is a lucky thing for the electric garage men in Chicago that the manufacturers and dealers are not politicians. If they were they would surely revoke our licenses to sell parts or accessories of any kind.

One manufacturer went so far as to say that all the garage men should do to the electric car was to wash the mud off its wheels. If this only were done by the garage men, as per this suggestion, I would like to see where the electric vehicle business in Chicago would be at the end of six or eight months.

Garaging Gasoline and Electrics.

As stated previously, compare the service given an electric car to that given a gasoline car:

ELECTRIC.

Storage.
Charge.
Wash.
Polish.
Clean.
Call for and deliver.
Flush battery.

ANNOUNCEMENT

Our special free offer on the front cover page of May issue of Garage Efficiency is withdrawn July 10th.

Price { \$52.50 NOW—
\$75.00 July 10th

Briefly, our offer was for an exclusive electric sign at the former price of \$52.00 with 500 blotters and 500 cards absolutely free.

THIS ELECTRIC SIGN is beautiful in the day time—a brilliant display at night and economical to operate—burns three lamps on each side. No light is wasted. It's all directed downward over the advertising matter to light up the entrance to your Garage.
Length 52". "Garage" transparency 6" white letters, red background. Galvanized metal used throughout. Outside painted green, inside white.
Good for a lifetime. This is the famous Sign of Service for N. A. T. A. members.

THE 500 FREE BUSINESS CARDS are high class art work beautifully printed in three colors, illustrating this "Sign of Service," which now becomes your exclusive trade mark. Blotters bear your name and address.
They are just the thing to distribute among your friends and pass out to transients. If you are "from Missouri" write for free sample. This is the most effective business card you have ever seen. And remember the cards are yours *exclusively* and *free*.

THE 500 FREE BLOTTERS are also high class art work, three colors, with your name and address. They are of handy check book size, just the thing to enclose with your bills to regular customers.

You will make a big hit by giving them away and they will be used.

They carry good advertising copy and will keep your "Sign of Service" in the minds of your trade.

An Exclusive Trade Mark for Your Garage

Remember this is your opportunity for the exclusive trade mark, and the offer is withdrawn July 10th.

We can't discriminate. It's **First Come, First Served!**

We'll reserve the privilege for you if you write for samples of blotter and card **NOW**.

The Electric Service Co. of America
515 S. Dearborn St., Chicago

For full particulars see Front Cover Page Garage Efficiency, May, 1916

TEAR OFF COUPON ORDER BLANK ON THIS LINE
COUPON ORDER BLANK
Electric Service Co. of America, 515 S. Dearborn St., Chicago.
In accordance with your Garage Efficiency special offer, please book our order for your exclusive advertising service in the Sign of Service—the electric sign with 500 cards and 500 blotter bearing your name and address. Enclosed find \$17.50 for payment for the cards and blotters. balance \$35 C. O. D. for sign, subject to our approval.
Name Address City State
Ship via

OIL.

Keep wheels in line.
 Turn grease cuts (at least every 3 days).
 Look after brushes and controller contacts.
 Inflate tires.
 Furnish drivers when desired.
 Keep record on battery so it will not get shorted.
 Carry liability insurance while cars are being delivered and called for.
 Carry property damage insurance.
 Keep skid-chains repaired.
 Keep charcoal heaters going.
 Pay car fares on deliveries of cars.
 Then, last but not least, the electric garage man must have a special claim agent to adjust difficulties which arise between the garage man, manufacturer and car owner.

GASOLINE.

Wash car.
 Polish.
 Store.
 Clean.

The gasoline garage man gets \$35 per month for his largest limousine. Thirty dollars on a seven-passenger touring car, without windows—simply a windshield to be washed. Twenty-five dollars a month for small touring cars without hardly any cleaning or polishing.

The electric garage man gets either \$35 or \$40 on his cars. However, the electric garage man must furnish the power while the gasoline garage man does not, and makes a profit of from 2 cents to 3 cents a gallon on his gasoline and about 30 cents a gallon on the sale of oil.

The gasoline man gets paid for every little thing done on the car, such as turning grease cups, changing tires, etc. Also, if the gas car owner needs a tire, spark plug, fender or some similar part he gets it through the garage man. It is not so with the electric car with a long guarantee tied to it.

The Open Secret of Success.

Why is it that the Ford, Overland and similar large automobile companies have been so successful? Simply because they

have given all the garage men an opportunity to make a profit on the sale of their cars, so that they all become boosters for their particular cars. This, however, is not done in the electric car game.

Now, gentlemen, I do not want any of you to feel that this is meant for any one manufacturer in particular. It is simply a layout of the true conditions in Chicago and I feel it ought to be looked into.

A THOUGHTFUL RESPONSE.**By the Manufacturer.**

Mr. Salvat was answered by Gail Reed, sales manager for the Walker Vehicle Company, of Chicago, whose paper contains a great deal of practical business advice, the soundness of which has been proven by its widespread use by business organizations throughout the world.

These two papers are analyzed elsewhere editorially. They are presented on their respective merits. Mr. Reed's paper is here reproduced:

The tone of the paper just read on "Greater Garage Service" might be considered justified from some electric garage men's standpoint, but we fear it is colored too highly to do the electric vehicle business a real benefit. Electric vehicle users and others not in a position to know the intimate side of the garage business, would be led to believe that the conditions existing between the garages and the dealers are worse than deplorable and that a condition of open warfare existed. Such an impression would without question make any prospective electric vehicle purchaser very reluctant to consider getting in between the two fires. For that reason, it is considered highly important that the actual facts from both sides be given clearly and concisely.

As a whole, the answer to this paper can be summed up by the following:

That the business relations of the electric garage man and the dealer can be materially improved it is true, but the conditions as they exist today relative to the user of electric vehicles are not in any respects as unfavorable as the garage man would have us believe.

Remedy Up to the Garage Man.

Furthermore, the dealers have gone considerably farther toward helping the welfare of electric vehicles and garages than the garage men and the solution of this problem from the garage man's standpoint, is up to the garage man and not up to the dealer.

The discussion following is given in answer to the paper on "Greater Garage Service" so every one concerned may have a clear conception of the true status of affairs and it is hoped that this discussion will be taken by the garage men in the spirit of friendliness and co-operation that it is given. It should be made clear that the criticisms recorded herein are given in the hope that they will assist the electric garage men in approaching their requirements and needs from the proper angle and in the proper state of mind.

It should be added that if all of the electric garage men in Chicago put in one-third as much conscientious effort and thought toward the promotion of the electric vehicle industry as the author of the paper under discussion, the tone of the paper dealing with the garage subject, would be entirely different than the one just read.

Opportunities Not Improved.

The first impression gained from this paper was the fact that the electric garages have, and admit that they have, the best opportunities for promoting the interest and sale of electric vehicles.

Second—That after admitting that they have these opportunities they are not making use of them.

Third—That the interests of the garage men and the dealers of electric cars are

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mutual, viz., that both must do all in their power to promote the usefulness and serviceability of electric vehicles. The garage man evidently has lost sight of the fact that the progressive steps taken by the dealers and manufacturers in the care of electric vehicles have been promoted for the welfare of the vehicle at large.

The gist of the garage plea is that the manufacturers or dealers must pay the garage man to do the very things which the garage man should be doing himself.

Interdependence of Garage Man and Dealer.

Taking up the first general topic, viz., "the facilities which the public garage has for promoting the business in general"—from the manufacturers' standpoint we believe that their interests and the garages' are so mutual that it is just as important for the garage man to do all he can to co-operate with the dealer as it is for the dealer to co-operate with the garage man. The garage man is dependent on the dealer for his business, while the dealer is not wholly dependent on the garage man for his sales.

Electric garages have been operated for years on a profitable basis and were operated many years ago when the number of cars was considerably lower than at present. The properly managed garages in every instance did a profitable business and this business was done on practically an exclusive garage or storage basis.

The Light that Failed.

In Chicago when it was found that the rates received for garaging and caring for the electric vehicle were considered unreasonably low, the dealers and manufacturers were the first to support the garage man in procuring reasonable and profitable rates. While the public garages co-operated in this respect, conditions apparently were benefited materially, but unfortunately differences arose with the result that the many new electric garages opening up, were operated on an unprofitable basis and without consideration for the garage business or electric vehicle

business as a whole. The result soon developed a "cut-throat" method of dealing among garages with the consequence that no stable rates nor service were maintained, and the organization, which had been promoted to aid the sale and service on electric vehicles, lost its entity and sense of direction. Since that time numerous attempts have been made to arouse sufficient interest on the electric garages' parts as well as the dealers' to form a more mutual co-operative policy.

It is realized by all manufacturers and all dealers that cordial working relations are much desired with the garages. Not that matters were so serious with the electric garage business that it was necessary to go as far as many garage men claimed, but to have closer working relations that would tend to cut down some causes of friction and keep the interest and the care of electric vehicles at the top notch of effectiveness.

Measured Service Advocated.

The paper under discussion states that the main complaint of the electric garage man is that he is not receiving returns enough on his business. That the gasoline man gets a flat storage rate plus extra for supplies, oil and gasoline. If this is true, why do the electric garage men wait for somebody to take the initiative? They should change their mode of doing business and place their business on a measured rate, viz., flat storage for the electric car the same as the gas car and charge the customer then for the amount of current consumed as well as the other items, the same as the gasoline garage.

There is no question at all but what the manufacturers and dealers would unanimously support such a move, for it would without question be of advantage to the entire electric vehicle business. But such a move as this is up to the garage man. He should not blame the manufacturers and dealers if he is operating his business on an unprofitable basis, neither should he insist that the dealer pay him commissions, etc., to make

up for his own lack of initiative in putting his business where it should be.

The matter of rates and justified charges for service is in the garage man's hands, not in the dealer's. The history of the electric garage business, so far as Chicago is concerned, has shown the dealers at all times to be more than willing to support the garage man in getting fair prices for his service.

Time for Action is Here.

A year ago an attempt was made to organize the dealers and garage men on a basis that was thought would prove very beneficial to all concerned, but through insufficient co-operation very little was accomplished. Conditions have not improved nor advanced as they should with the electric vehicle business in general in Chicago, due to the lack of proper interest and co-operation in all quarters.

It is true the time is more than opportune for all interested to adopt a broad-gauged policy in order that the interests of the industry as a whole may receive the impetus they need. The strongest boost possible toward this much needed interest could be gained if the public garages would get together and take hold of their own affairs the way they should. Conditions show the need of such a step on the garages' part, in which event lack of interest on any one member's part would not be sufficient to block the general movement at any time.

Furthermore, if the garage business were in as dire need of radical help as the paper just read would indicate, the garages would certainly not give up their plans for bettering the business upon meeting slight opposition.

The garages should be in position to make every manufacturer or dealer appreciate their worth, but it is feared their lack of organized effort to raise their standards has impressed many dealers in a negative way.

Garage Men Should Take the Initiative.

Why do the great number of garages in



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Chicago always wait for some one else to take the initiative? Their business is distinct in a sense and they could, with a little spare time and effort, organize their own business in an efficient manner and show the dealers and manufacturers that they are really interested in promoting the general use of electric vehicles.

For instance, in the efforts that have been made recently to put through policies that would benefit the dealer, electric car owner and the garage man, it has been next to impossible to obtain even a full committee attendance. For example, the chairman of the Garage Committee of the E. V. A., Chicago Section, recently sent out a letter to a committee of eight, and in this letter the subject for the committee's consideration was clearly outlined.

This subject dealt with the very items which the garage men are crying for the hardest. If the response given to this committee call as well as many other like efforts, is indicative of the needs of the electric garage men of Chicago, it would appear that they are so completely satisfied with their business conditions and conditions of the industry as a whole that not one of them felt it necessary to attend this meeting and only two were gracious enough to send their regrets. It is this lack of interest or spirit that has led many dealers to feel that their many efforts and time spent in trying to work out the garage man's problems are practically wasted.

If the electric garage man is entitled to more profit we believe he would unquestionably be paid according to the value of his work.

Those garages who have wide-awake management are not only thriving, but their business is growing. With all the opportunities that the electric garage claims for promoting the sale of electric vehicles, why do they take so little interest in doing so if they know that to use their influence would bring them more cars and more business?

Why Not Co-operate.

What many dealers cannot understand is why the garage men feel hurt unless they receive a commission on names of prospective buyers that are sent in by them. They ask for co-operation. They want more cars in their garage to take care of. They know if they send prospects to the dealer and he sells them electric cars, that these electric cars will help to fill their garages, but in order to do this, they insist on being paid. It is like paying a man to promote his own business. We know of no case where a dealer ever received a commission from a garage for sending in electric car customers to the garage. The proposition is mutual. The garage man should be more than willing to send prospects to the dealer and the dealer should be more than willing to send prospects to the garage.

These are some of the questions which the majority of manufacturers and dealers have in mind. It is our opinion that most dealers would consistently support any reasonable measures of co-operation with the electric garages, but in order to gain the real interest of these dealers it is going to be necessary for these garages to show more interest than they have in the past.

Electric Garagemen Are Efficient.

It is the belief of the writer that the majority of the electric garages in Chicago are as capable and efficient in giving all the necessary attentions an electric car requires, as the dealer, but due to lack of cohesive effort among the garage men, there are numerous public garages who are not in position to give what is termed reasonably good care, they lack the necessary equipment, stock and men for turning out the necessary work.

If the garage men would organize in such a way that those garages which are not in position to give best service could be given the aid of the good garages in bringing their service up to standard, we believe the first step would have been taken by

the garages, toward promoting their repair business.

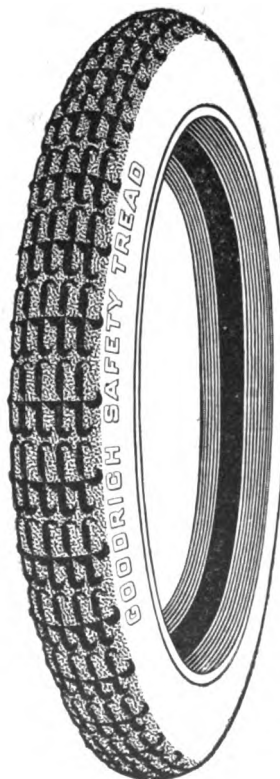
For example, the writer, in talking personally with practically all of the important garage men in Chicago, finds each of these garage men makes the statement that so far as his garage business is concerned, he is very well satisfied. He feels that he is getting his share of the business but he feels very sorry for the little garage man and some of the others. This would indicate that in the main, the majority of the garages are not so badly off as they report. Naturally they are looking for ways of increasing their business just as any other business house would do.

Getting the Business.

Regarding the repair business of electric cars, it is the writer's opinion that practically all dealers would be willing to give the garage man an equal opportunity with them in soliciting any repair business but it would be very hard to convince any dealer or manufacturer, be he gasoline or electric, that the garage man alone is entitled to all the repair work. The dealer is just as much entitled to repair work as the garage man and furthermore, the dealer has found his service and repair departments most valuable selling adjuncts, so much so in fact that no first class dealer today can presume to stay in the ring, let alone increase his sales, unless he can guarantee A-1 service and attention.

Studying the conditions among electric car manufacturers and dealers, it is more than apparent that they are in need of all the business they can get, be it sales or repairs, for from the number of concerns that have gone out of business in the past two years, it would indicate that the profits are by no means so large that they can afford to give up in any way their sources of income. It is, however, only fair to give the good garage man the opportunity of obtaining his share of the business on a fair competitive basis and it is also true that the garage man could

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COMPARE prices on Goodrich "Fair-List" Tires with present prices on any other responsible Tires in the field, bearing in mind that NO "LARGER-SIZED" Tires (type for type and size for size) than Goodrich Black-Treads, are made in America.

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Get a sliver of the new Goodrich "Barefoot" Rubber from your nearest Goodrich Dealer or Branch.

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GOODRICH "BAREFOOT" Tires

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not sell his customers tires, batteries, paint and other equipment if he is in position to give the customer the service he demands for these items. The garage man should have the advantage over the manufacturers or dealers in soliciting this business. He is in touch with the customer every day out of the year, while the dealer or manufacturer may see the customer once a month or once in three or four months.

Equipped to Handle the Business.

It is unreasonable for the garageman to expect as many returns from an inferior equipped shop, inexperienced force and lack of wide awake business methods, to obtain the same returns in repairs and accessories that would go to concerns that are using all modern methods for selling service. Right here is where the garagemen are making a mistake in not organizing themselves more firmly into an association wherein the best ideas in merchandising or selling their service can be taken advantage of by all. The concern that lags behind through inaction, old time methods or poor equipment has no right to complain because it is losing business and another concern that is wide awake and on the job is getting the business. If the public garagemen will wake up as they should, there is no reason why they should not make their service more valuable and if their service is as valuable as the dealer's or any one's else, they will naturally get their share of the business. The public today are buying service. If they find they can purchase repairs and service of better quality from one place than another, that is where the trade will go. This is simply applying the inevitable law of commerce to the question.

Dividing the Repair Business.

There is little question but that the best dealers and manufacturers would be more than willing to regulate their repair business in such a way that the garageman would have a fair opportunity of getting his share of the business.

The writer is in position to know that

several of the most prominent electric car dealers in Chicago are doing all they can to give the electric garageman an opportunity to obtain repair business and other income by adhering to a policy of one price on batteries, tires and paint. The writer also knows that one concern is co-operating with the garagemen by turning over a commission to them on the care of all rental batteries in order that the garageman will not only give the customer the service desired but makes up to the garageman for the profit which he might make on battery renewals.

Inspection Reports.

It is also a fact that two of the largest electric car dealers in Chicago are adhering closely to the following policy with regard to inspection reports:

On reports wherein the garage is thought to be at fault, the garage, not the customer, is notified and this form is followed for three successive times. If the garage, after the third notice, fails to pay attention to the report, the owner of the car is then advised. This policy of working with the garageman on these matters should not prove a hardship and any garageman that does not take sufficient interest in the welfare of a car to heed the dealer's advice after being given three times should have no right to object to the owner being notified and if his business is run on such a basis that so many notices are necessary, he would have no right to object if the manufacturer or dealer advised the owner keeping the car elsewhere.

While this policy is not followed by all the dealers as is indicated in the paper just read, still the only reason for such a policy not being uniform with all dealers is to be blamed on the garageman alone. If they would formulate a reasonable basis of operation and show the dealers that they would improve their service by conforming to some of the things the dealers now find it necessary to do, all of these main objections would be removed. There are a great many other advantages which

the garagemen could obtain if they got right down to business and organized themselves on an efficiency basis.

Get What You Earn.

It is our opinion that the garages will get just what they earn. If they are wideawake, aggressive business-getters, they will always obtain their share of repair work and supply business. If they are waiting around, expecting some one to hand this to them, they will be disillusioned just as any business house would be if it expects its business to come to it instead of it going to the business.

As to the guarantees which were mentioned in this paper, we do not find that the warranties furnished by electric car manufacturers cover any greater length of time than the average gas car. Neither is it the policy of electric car dealers to supply any parts free or expect garages to do so. No electric car today is giving other than the warranty which is recommended by the National Automobile Chamber of Commerce, which is the same form of warranty that is used on all gas cars.

As for guarantees on batteries, we get back to the primary motive of electric car dealers, viz., the sale of more electric cars. It was found necessary to assure the public with regard to the life of batteries in order to have broader selling policies. Electric garage men will admit, previous to the time of battery guarantees the main objection offered by prospective customers was the question of the life of a lead battery. The electric garages did not guarantee them nor did the storage battery people until the electric car manufacturers brought sufficient pressure to bear that a warranty or guarantee was given.

Battery Guarantees.

This guarantee on batteries has proven one of the most valuable selling assets the electric car dealers have had. If this guarantee were given up for the sake of the garageman and the sale of electric vehicles dropped off decidedly on that account, wherein would the electric garage-



Your Air Compressor Will Work for You as Well as Your Customers.

Is your compressor idle a good deal of the time? Are you paying for electric current that you are not using? If so, get an air hoist and put your compressor to work. You are paying for the power anyway, so make use of it. There are hundreds of different ways of using an air hoist. It costs no more than a slow chain block and needs only one man to operate it. Your customers will patronize the garage that is equipped to do good work, and do it quick, and will pass the word on to their friends.

Let us quote you and give you information as to how an air hoist will pay you in your garage.

CURTIS PNEUMATIC MACHINERY CO.
1597 Keinlen Ave.,
ST. LOUIS, U. S. A.
530C Hudson Term., N. Y.



Clothes Safe from Grease and Dust

No need now to ruin your clothes with odd jobs on your motor car. Protect your clothes — from head to foot—with a





One - piece over - garment for every use.

Put it on in a minute. Take it off in a second. Keep it always in your tool box, handy for instant use. Made of olive khaki to go on over all your clothes — comfortable, durable, practical and washable. Costs but \$2.

Don't change your clothes every time you change your tires, clean or grease your car. Save big bills at the cleaners.

If your dealer cannot supply you, send \$2.00 giving chest measure and dealer's name. We will send you one direct, prepaid. Money back if not satisfied. (5)

W. SHANHOUSE & SONS

Dept. 105 ROCKFORD, ILL.

man or the dealer benefit? On this particular point, reason can be used in forming the guarantees to see that they are based on fair stipulations.

The garageman has an equal opportunity to solicit battery repair business and is given the same right by the battery manufacturer to guarantee the battery he sells as the manufacturer or dealer. For that reason, it would appear that if all guarantees were put out on a reasonable basis, there should be no objection to this point from the garageman.

The regular guarantee given by the most prominent lead battery concerns is not only fair to the customer, but everyone else concerned. It operates on a pro-rata basis. The customer pays only for such mileage as is obtained from the battery. The guarantee, as used by most of the manufacturers, is on exactly the same line as a tire guarantee which is the only basis equitable to all concerned, for such a guarantee.

Advertising the Electric.

Another point mentioned is the total lack of advertising on electric cars in Chicago. The writer is not in position to give exact figures, but it is known that there was a campaign run for six months in the principal street car lines of Chicago on electric passenger cars, there was one large billboard campaign run on the principal thoroughfares of Chicago on electric commercial cars, there has been at least calculation \$30,000 spent on newspaper advertising. This figure is exceedingly low. Practically all of the mediums that are worth while for electric cars such as Grand Opera programme, concerts, summer gardens and electric signs, have had good representation from electric car concerns and in addition the large use made of mailing lists and followups of printed matter have been sent out consistently.

In addition to this, the central station interests have always given over liberal space in their appropriations for the promotion of electric vehicles. It may be recalled in the last year that the first electric car parade of any consequence was

attempted in conjunction with the Prosperity Parade held in the fall. We believe there were more electric cars in this parade than any other ever held in Chicago. The promoters of this section of the parade worked solely for the benefit of the publicity given electric vehicles.

It is well to call attention to another exclusive electric vehicle parade staged at a later date. This time only commercial electric cars took part. This is the first and only large electric commercial vehicle parade ever held in Chicago to our knowledge. This comprised a total of eighty-six Walker electric trucks, to haul 600,000 pounds of merchandise through the loop of Chicago. This was publicity of the finest kind for the electric vehicle.

It is true there should be probably twice as much publicity given but the percentage of profits in the manufacture of electric cars is not great enough to warrant an additional outlay. For that reason if the industry is to be promoted for the welfare of all that are in it, this additional advertising should come from those who will directly benefit, viz., the electric garagemen.

Work of the Chicago Section of the E. V. A.

The efforts of the Chicago Section of the E. V. A. during the past year have been expended to a great degree in the interest of the electric garage men. While the garage membership has been favorably increased, there have not been the number of electric garages represented in the section that should be. If the electric garageman is really in need of the aid he claims and is ready and willing to do his share in promoting the welfare of his business, it will behoove him, not one or two, but the entire garage profession, to get in the harness and show that they are really sincere by taking active steps and showing real interest in the general association work.

Join the E. V. A.

For the sum of \$5 they can become associate members of the Electric Vehicle

Section of the N. E. L. A. Through this medium they have the advantage of coming in direct contact with the manufacturers and dealers, have their own committee wherein they can formulate the plans which they think will be best in consultation with the manufacturers and in this way bolster up the weak spots, gain progressive ideas on how to get new business and form themselves into a working body of alert business men. To date, however, with a few exceptions, the electric garages of Chicago have not shown sufficient interest in promoting their own welfare to join associations that will give them an opportunity to act. Apparently the only move they have so far been able to make has been a plea to the dealers to pay them for something that they have not earned.

Parking Service.

It is fitting to quote one example of how much the electric garages can accomplish if they pull together in a real co-operative body with the balance of the dealers and interested members. That the electric garages can accomplish much good, not only for their own direct benefit, but that of the business as a whole, is clearly indicated by the success of the parking service established under the auspices of the Electric Vehicle Association.

While the E. V. A. was responsible for getting this started among the numerous garage members, it was entirely up to the co-operation of the garages to assure its success. The parking service is now an established factor in Chicago and one which is accomplishing great good. The ever-growing congestion of Chicago streets which necessitates the thirty-minute ordinance, subjecting any owner of an automobile to arrest if his car is standing longer than that period in any one place, and the difficulty on most car owners' part in finding any place whatsoever to leave their car in the loop, has trebled the value of this parking service. Two stations are located conveniently on Michigan Avenue.

An
Electric
Sign



Will
Keep You
Busy

Mr. Garage Owner, They Can't Lose You, If—

you install a compelling trade-attracting Federal Electric Sign on the front of your garage.

You want more business—this is one of the best and cheapest ways to get it. Your Electric Sign is your trade mark. It impresses **your** garage indelibly on the automobile owner. It is the surest, quickest and the most economical means of keeping before the public.

Let us show you how cheaply and how effectively we can carry out your ideas. Address Department E.

COMMONWEALTH EDISON COMPANY
Edison Building, 72 West Adams Street, CHICAGO

at which points all owners of cars keeping them in E. V. A. garages can place their cars in the hands of the parking service, from which station these cars are taken to Grant Park where there is ample room for storage until the owner returns to the station for his car, at which time the station procures the car and the owner, without expense, loss of time or trouble, gains the full use of the car to and from the congested parts of the city and has no worry about the care of the car while attending to business in the loop.

At present thirteen electric garages are supporting this service and are finding it of great value to their business.

Depend on Your Own Efforts.

The electric garageman can accomplish wonders if he will stop long enough to realize that what he wants must be gained through his own good efforts, and not through dependence on some one's else. When he reaches this decision, he will find the heartiest and warmest support from the dealers and manufacturers and we believe that his alleged troubles would soon disappear.

Opinion of the Man from the Central Station.

It was pointed out by a representative of the central station of Chicago that the statement "anyone can run a gas garage" was true because of existing conditions, that is because of the preponderance of the use of gasoline cars and that "could you imagine a condition where there were a thousand gasoline cars to one electric car, conditions would be entirely reversed."

Electric car owners, it was stated, demanded the very highest class of service and it takes an intelligent man to fur-

nish that class of service, consequently it takes an intelligent man to operate an electric garage successfully. "It is not a case of being put out of business so much as it is a case of getting out because he (the electric garageman) does not know how to maintain the business."

Manufacturers of electric cars should not be so ready to blame all trouble with electric cars on the deficiency of the electric garageman. The speaker thought the comparison of profits from garaging gasoline cars and electric cars was overdrawn in favor of the gasoline car and continuing said: "If the idea of measured service were followed out it would eliminate a great deal of this something for nothing business which has been brought to our attention. There is more profit in the sale of electricity than in the sale of gasoline, if it is handled in the right way."

Garaging Commercial Cars.

Mr. McRae—I think we can remember the time, not very long ago, when the general opinion of manufacturers of electric vehicles was that we could get along very well without any public garages. The idea was that an automatic charging apparatus could be made to do the work. That feeling is not now very general. Where the electric vehicle is to be used for any other purpose except as a plaything it must be taken care of in a properly equipped garage.

Further along this line the speaker pointed out that there are few cases where the electric vehicle is not properly

taken care of by the garageman and where trouble was found it frequently was as much the fault of the battery manufacturer as of the garageman. Continuing he said:

The people are told that the electric is fool proof. Some of the garagemen actually believe this is a fact and act accordingly. They take the manufacturers' word for it. If there is a weak-minded employee in the place, one that cannot be trusted to sweep the floors, he is put in charge of the electric vehicles.

It is time we quit telling the story that the electric is fool proof. It is time, as Mr. Salvat has pointed out, to get together and improve the efficiency of the electric garage. Make them more prosperous and we will boom the electric vehicle business.

The garage work should be first class in every respect. The electric is a failure where it is not properly cared for.

Mr. Salvat's Reply.

Replying to the several talks and particularly to the paper by Mr. Reed, Mr. Salvat pointed out that the car owner must go to the dealer in order to maintain his battery guarantee. He said his current bill was very low and that he did not believe it would pay to measure the current used. He filed a copy of a resolution, signed by twenty of the leading electric garagemen of Chicago, in which the co-operation of manufacturers of electric vehicles was sought to improve conditions in Chicago and vicinity.

A Local Condition.

Robert Bland—After listening to Mr. Salvat's paper and the very able response

Dealers Service Station ..FOR TIRE REPAIRS..

**GUARANTEED WORK
PROMPT SERVICE
RIGHT PRICES.**

**SPECIAL ATTENTION TO
GARAGE ORDERS**

TRIPLE TREAD MFG. CO.

1545 Michigan Avenue, Chicago
Phone Calumet 2456

We Grind Cylinders

By specializing, we make ridiculously low prices on regrounding cylinders.

Our prices include new pistons and rings. Work neatly and promptly done and absolutely guaranteed.

Write for Particulars

**ALLEN & CURTISS CO.
MISHAWAKA, IND.**

Empire Tires
RED **WEAR LONGEST**



We believe the dealer must live.

To live he must make a profit.

To make a profit he must have price, quality and service.

Our prices show a legitimate profit to the garage man.

The quality of EMPIRE RED TIRES is supreme. That is why our slogan is "WEAR LONGEST".

EMPIRE TIRES will give service, and it is our aim also to give service.

We do not cater to the consumer, but sell our tires through legitimate dealers.

Why not get our proposition?

EMPIRE RUBBER & TIRE CO.
1627 Michigan Ave. Chicago, Illinois

by Mr. Reed, of the Walker Electric Vehicle Company, and the general discussion, I have come to the conclusion that the subject has been very well covered and that this is a local condition, one that exists only in Chicago and suburbs.

You were surprised when you heard Mr. Salvat read that paper. You did not think the electric vehicle manufacturer was quite so bad as he was pictured.

I am standing here as a successful electric garage owner. I feel like Salvat, I hated to see these twenty-eight fellows go out of business in the last year.

Salvat's demands are right, equitable and just. They should receive your earnest consideration and hearty approval.

The advice given by Mr. Reed, that the garageman must raise his efficiency and compete for the business, I think is fair as far as Salvat and I are concerned. I do not think we have any regrets. We have had our share of the business. Our concerns employ seven or eight mechanics and get our share of the repair business. That is a matter of salesmanship and square dealing with the customer. If the garage owner will give his customers a square deal and will equip himself to handle the business he can get his share of it.

A Constructive Program.

Mr. Bland paid his compliments to the service departments maintained by the manufacturers of electric vehicles and stated that he promised his customers a square deal and gave it to them and added: "If the manufacturers are going to insist on the service department idea being carried out to a successful issue the electric vehicle is going down the toboggan slide in two years. It is getting away from you and you know it. You are devising ways and means of

getting the big end of the business and making the garageman the goat."

He pointed out the evil effect of continual bickering between manufacturer and garageman on the owners of electrics and argued that unless a constructive program between manufacturer and garageman was arranged the electric car would fall into disfavor, with the result that present users of electrics would "go the gas route."

"If we are not able to secure our share of the repairs and keep a crew of competent help to take care of cars in our garages how are you manufacturers going to sell cars with that kind of service? If there is a minor adjustment to make but one that is absolutely essential to the operation of an electric, is that car to be driven, or towed, to your service stations for repairs? Will you make a charge for the trip and a charge for the repairs? How are you going to do these things?"

"And how is the garage owner going to live?"

"Conditions prevailing here in Chicago and vicinity do not exist in any other city in the country. It is pretty nearly a fifty-fifty break outside of Chicago.

"Now, gentlemen, you have enough to consider without mixing into our little scrap here in Chicago. This is a local matter.

"A committee should be appointed

composed of the ablest men in this organization to wait on these manufacturers and the prominent garage owners to see if we cannot agree on a co-operative basis, one that will be beneficial to the industry.

"If in order, I would call for the appointment of such a committee."

COST OF GARAGING.

Is it worth as much money to garage an electric in Chicago as it is in Detroit?

Should the basis of assessing the cost be the same in both cities? These questions are important and should be handled by the electric garage interests of this city.

The price list published by the Grosse Pointe Motor Service Station of Detroit (4283 Jefferson avenue, Grosse Pointe Mich.) gives rates for garaging electric cars which are divided into three classes. The rates follow:

	Roadsters.	Coupe.	5 pass. Broughm.
Full service.....	\$20.00	\$22.50	\$25.00
Limited service....	17.50	20.00	22.50
Semi-weekly service			
Ice	14.00	16.00	17.50
Weekly service...	11.00	14.00	15.00
Cleaning service..	11.00	14.00	15.00
Live storage.....	10.00	12.50	14.00
Dead storage.....	7.00	8.00	8.00

These rates for electric cars do not include current for charging. Boarders on a monthly service basis will be furnished current at .05½ cents per K. W.

VOLKCAR

Storage Batteries

Are Installed
by the Largest

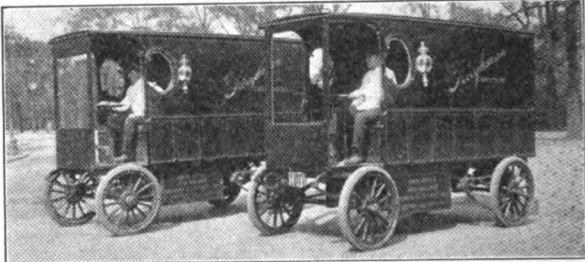
Electric Car Manufacturers

in the World, in their Cars
Sold in Chicago
and Suburbs

For Further Information
Ask the Users

or

Volkcar Storage Battery Company
2437-39 Michigan Avenue
CHICAGO, ILLINOIS



G. V. ELECTRIC TRUCKS

ARE BEST FOR CITY SERVICE

DEALERS IN OPEN TERRITORY
ARE INVITED TO CORRESPOND

SIX MODELS: 1,000 LB. CHAIN OR
WORM DRIVE, 2,000, 4,000, 7,000,
10,000 LBS. CAPACITY

GENERAL VEHICLE CO., Inc.

General Office and Factory, Long Island City, N.Y.
CHICAGO OFFICE, 612 OTIS BUILDING

Service Defined.

Full Service—Storage space, 7-foot stall; daily wash and metal polish; daily cleaning of windows and inside; one delivery and call for each 24 hours in half mile circle; two inspections and oiling of car per month; (battery care included) tires kept inflated; storage battery kept flushed.

Limited Service—Storage space, 7-foot stall; wash and metal polish twice a week; cleaning windows and inside twice a week; two inspections and oiling of car a month, battery care included; tires kept inflated; storage battery kept flushed.

Weekly Service—Storage space, 7-foot stall; car washed, metal polished, windows and inside cleaned once a week; one inspection and oiling of car per month, battery care included; tires kept inflated; storage battery kept flushed.

Cleaning Service—Storage space, 7-foot stall; dust off and clean inside and windows daily; tire kept inflated; storage battery kept flushed.

Live Storage—Storage space, 7-foot stall; car may be moved at will.

Dead Storage—Storage space, 6-foot stall; car cannot be moved but is placed on jacks and covered.

AUTOMOBILE STARTING AND LIGHTING

The Norman W. Henley Publishing Co. of New York City is publishing a new book of Automobile Starting and Lighting. This practical volume has been written with special reference to the requirements of the non-technical reader desiring easily understood explanatory matter relating to all types of automobile ignition, starting and lighting systems. It can be understood by any one, even without electrical knowledge, because elementary electrical principles are considered before any attempt is made to discuss features of the various systems. These basic principles are clearly stated and illustrated with simple diagrams. All the leading systems of starting, lighting and ignition have been described and illustrated with the co-operation of the experts employed by the manufacturers. Wiring diagrams are shown in both technical and non-technical forms. All symbols are fully explained. This is a book of real merit. The price is \$1.00.

BROOKES' AUTOMOBILE HANDBOOK

The Frederick J. Drake & Co. of Chicago has just gotten out the 1916 edition of Brookes' Automobile Handbook. The reason for this complete revision is found in the automobile industry itself, in the radical changes and remarkable de-

velopments that have taken place. The new principles, new types of construction and the changes in operating conditions have affected every part of the car. For this reason it has been considered advisable, not only to supplement existing information with descriptions of new products, but to treat every subject presented from the standpoint of present day ideas and developments so that the user may not be confused by statements that apparently conflict, as would be the case if the revision had ended with the addition of new data.

A glance at the designs disclosed many changes, among them being the decrease in cylinder diameters and the increase in the number of cylinders from four to six to eight and twelve; the growing popularity and importance of the sliding sleeve engine; the modern methods of battery ignition applied to high speed engines; the development and adoption of vacuum fuel feed, and many other details of equal importance. The universal use of electric lighting and engine starting devices has made this subject of importance second to none, and the present edition therefore covers the details of construction and operation of all existing types and makes that are in common use. With the use of the electric generating system operated from the car's engine has come the electric gear shift; and along similar lines, though in-

**BALL BEARINGS REGROUND**

Mr. Car Owner

Do not throw away your worn bearings have them reground at a small cost. Guaranteed equal to new.

Mr. Garage Man and Dealer

Favor your customers by keeping their repairs bills as low as possible

Write for our Catalogue "F"

AHLBERG BEARING COMPANY

2636 Michigan Avenue

Chicago, Ill.

New York Cleveland Minneapolis Detroit Los Angeles St. Louis Boston



AUDELS

Automobile Guide

A complete treatise on the automobile for owners, operators and repairmen. Answers practically any question relative to the care, repair and operation of a car. Over 500 pages, fully illustrated, including a chapter on Self-Starters and Lighting Systems. Flexible Leather Binding—

Price..... **\$1.50**

Address

Book Dept., Garage Efficiency

608 S. Dearborn Street, CHICAGO



Edison
Alkaline
Lighting
and
Ignition
Batteries

Batteries and Supplies
carried in Stock at our

Service Station

Every Garage Owner should have information about the Edison Battery on his desk.

Write us.

EDISON STORAGE BATTERY CO.
Orange, N. J.

Chicago Address: 2025 Michigan Avenue

dependent in conception, the magnetic transmission.

Brookes' Automobile Handbook has been the recognized authority in this field. The arrangement of subject matter has not been altered and nothing has been omitted that caused the preceding editions to attain their popularity. An examination of the pages will show that no subject of importance to owners or repairmen has been omitted, while details for the proper upkeep and care of each component of the modern gasoline automobile have been given.

N. A. T. A. PLANS MATURING.

J. C. Thorpe, of Urbana, Ill., who for many years has been active in local and state association work, has been prevailed upon to cast in his lot with the National Automobile Trade Association. He will be associated with National Secretary R. A. Wilson in the management of the Chicago office.

Plans for conducting the work in a more active manner are now maturing. This work is being carried on without a great blare of trumpets and is progressing steadily and satisfactorily.

Mr. Thorpe's experience has qualified him to handle his part of the job. He has operated a garage and salesroom at Urbana, Ill., for several years selling

the Marmon and the Buick cars. He is an enthusiastic association worker and his liking for the work is backed by a

knowledge, secured at first hand, of the problems confronting the dealer and garageman.

Insurance Against Accident.

The Staude Glare Stopper consists of a disk of a pure amber glass, easily attached to the windshield of any make of automobile. It protects the driver from



bright and blinding lights, making driving at night a pleasure.

Drivers of automobiles, upon meeting on the road at night, are blinded by each other's headlights and both go ahead,

each keeping to his side of the road and trusting to luck they do not collide.

In many cities laws are being passed limiting the candlepower of auto headlights because of the blinding effect. The Staude Glare Stopper corrects the trouble at the other end, relieving the eyes of the driver without reducing the light on the road.

The dimmer laws, which are operative only in the city limits, do not decrease the necessity of the Staude, as the strongest light possible is necessary on the country and poorly lighted lake or boulevard drives for safety.

The price of the Staude is \$2.50. Nearly all accessory stores carry the Staude. Interesting booklets are mailed by request from the E. G. Staude Manufacturing Company, Dept. G. E., 2675 W. University avenue, St. Paul, Minn.

A New Vaporizer.

The H. O. Manufacturing Company, Cambridge, Mass., has a new vaporizer which consists of a tank of water which is strapped securely to the exhaust pipe, the heat from which raises the water to such a temperature that vapor is given

Profitable Repair Work

IMPERIAL WELDING CUTTING EQUIPMENT

—Decarbonizing—all in one safe, efficient and economical outfit. WELDS broken parts, cracked cylinders, crank shafts, transmission cases, frames, axles, and everything in metal quickly and permanently. CUTS all kinds of steel and wrought iron. DECARBONIZES—quickly and effectively removes all traces of carbon from gas engine cylinders. Pays for itself in a remarkably short time.

Every garage should be equipped to handle profitable repair work this season. A relatively small investment in one of our outfits will give you exceedingly large returns and at the same time gives you an equipment that is unequalled in safety, economy and efficiency.

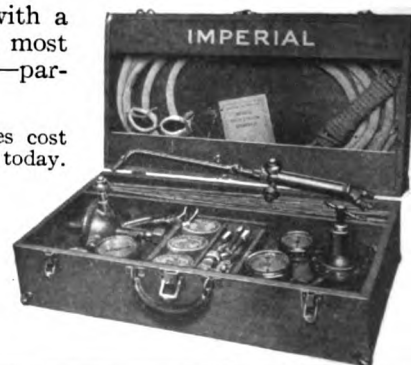
Practical mechanics grasp the operation of the process quickly, and with a little practice soon become efficient welders. Do not permit the most profitable work to go elsewhere—equip now—you will never regret it—particularly if you select an Imperial Outfit.

FREE BOOK. Our new illustrated catalog shows work actual done, gives cost of operation and other valuable data. Write for your copy today.

Imperial Brass Mfg. Company

1217 W. Harrison Street

CHICAGO, ILL.



off. Water vapor is supplied to the intake, where it mixes with the charge, increases the power and reduces carbon deposit. A pipe connection from the top of the tank carries the vapor to the manifold.

Safety Signal.

A rear safety signal which operates by day or by night and indicates when a turn to the right or the left is to be made, slowing down, stopping and backing to the right or left, is being put out by Signalite Manufacturing Company, Kansas City, Mo. These various functions are performed by the turning of the steering wheel, the depressing of the brake, engaging reverse, etc. A hand lever attachment for indicating turns to the right or left will be supplied if desired. It is illuminated with a standard tail light bulb and carries the license plate. This may be attached to any car in thirty minutes.

Shock Absorber.

The Auto Device Manufacturing Company, Milwaukee, Wis., has a new Adco Shock Absorber. A fully inclosed auxiliary spring which replaces the rear spring shackle, the movable side members being corrugated and moving in corrugated slots, which give increased wearing surface and prevent rattling of the operating parts. This construction practically makes the device dirt and waterproof. There are two springs. There is an outer coil which is said to perform the initial work of the leaf spring and a stiffer inner spring, which assists the outer one when the load is heavy.

Goodyear Tire-Saver Kit.

The Goodyear Tire & Rubber Company, Akron, Ohio, has introduced an outfit known as the Goodyear Tire-Saver Kit. This consists of a neat canvas roll containing a number of first-aid appliances designed to enable the motorist to take care of tire troubles without delay. A pressure gauge, tire putty for repairing tread cuts, a carton of French talc,

inside and outside patches for blowouts, self-cure patches for punctured tubes, friction tape for bare ignition wiring and a spare valve to replace a possibly leaky one, are included in the equipment. These kits come in three sizes, for 3 and 3½-inch, 4 and 4½-inch and 5 and 5½-inch tires, respectively.

Device Assisting Steering.

The Twin Rim Company, Boston, Mass., has recently bought out the Twin Safety Check, a device attached to front spring and axle, and designed to eliminate wobbling at moderate or high speeds, and assist steering in general. The Twin Safety Check not only will stop the side sway, it is claimed, but also to act as a rebound check and front

CLASSIFIED ADVERTISEMENTS.

WANTED—OLD CARS.

Will pay highest prices and spot cash for old cars in any condition. Jackson Auto Salvage House, 560 Jackson Blvd., Chicago.

FOR SALE.

Style B. Prest-O-Lite Tanks, in first class condition. Write for prices or telephone orders. Newberry Motor Service Co., 1118 South Paulina St., Chicago, Ill.

STARTING AND LIGHTING EQUIPMENT.

Magnetos, Coils, Lighting Generators, Starting Motors, Magnetizers. We manufacture, sell and repair. Prices right and service the best.

H. B. WEBER & CO.,
1336 Michigan Avenue, Chicago, Ill.

PROTECT YOUR IDEAS.

Many of the best selling accessories and supplies were invented by garage and repair men. Protect the ideas you develop. A patent, a trade-mark or a copyright may mean the difference between affluence and poverty in later years.

CHARLES TURNER BROWN,
127 North Dearborn Street, Chicago, Ill.

axle stiffener. It is claimed to reduce tire wear, due to the straighter course the car takes, and the reduced number of small skids. It can be applied in thirty minutes, without drilling of holes.

Two-Piece Piston Ring.

Albertson & Co., Sioux City, Iowa, offers a two-piece ring with joints at opposite sides. The section of each ring is stepped, the two fitting together to form the ring. This construction provides a comparatively long and tortuous path for any gases which may try to leak through.

Learn the Automobile Business

We teach you construction, repairing and driving in 6 to 8 weeks. Special instruction in Acetylene Welding, Knight Engines, Vulcanizing, Electric Starters, Automobile Salesmanship. Greer graduates always in demand. Earn \$150 per month and up.

Courses \$15, \$35, \$50, \$65 and \$150

Booklet "How to Succeed in the Automobile Business"—FREE. Write today.

GREER COLLEGE OF MOTORING

1519 S. Wabash Ave. Chicago, Ill.

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Share Our Profits

WONDERFUL BARGAINS IN REGULAR STANDARD GUARANTEED 3,500-MILE TIRES AND TUBES.

Size	Plain	Non-Skid	Tubes
28x3	\$ 6.35	\$ 7.00	\$1.75
30x3	6.95	7.45	1.85
30x3½	8.95	9.50	2.05
32x3½	10.30	10.85	2.20
34x3½	11.50	12.15	2.25
32x4	14.10	14.85	2.75
33x4	14.65	15.45	2.85
34x4	14.95	15.75	2.90
35x4	15.55	16.50	3.00
36x4	15.80	16.60	3.10
35x4½	20.80	21.85	3.75
36x4½	21.10	22.15	3.85
37x4½	21.85	22.95	3.95
37x5	24.90	26.25	4.50

Tires shipped C. O. D., subject to examination, on receipt of \$1.00.

Armstrong Tire & Val. Co.

1614 MICHIGAN AVE., CHICAGO, ILL.

Phone Calumet 2199

Best by Test Always Wear a Smile



Make your cars run smooth and easy

A Pennsylvania Product

Give us a one barrel trial order
Special discount to Garage Men and dealers

If in need of L. O. Soap, write us for price. We have it.

Non-Carbon
Auto-Oils

Light
Medium
Heavy

The S. A. Schwarz Oil Co.

Cleveland Ohio Columbus
Headquarters Cleveland, O.
Agents Wanted. Write for our proposition.

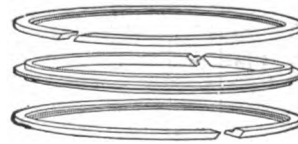
INSURE YOUR ENGINE'S LIFE

with Trump Multiple Piston Rings

They make old engines new and KEEP NEW MOTORS NEW.
Never lose compression.

Regular
Sizes
\$1
Each.

Any size to
order.



CROSS SECTION

Write
for
Booklet.

For Automobiles, Tractors, and every kind of gas engine.

Trump Mfg. Company

5 Union St.,

Crown Point, Ind.



A New Ford Starter.

The Peoria Specialty Company, Peoria, Ill., is getting out a "Shur-Go Starter," which is offered at \$17.50. It is a pedal-operated starter, designed for Fords, consisting of a ratchet pulley attached to the front of the crankshaft and rotated by a chain which passes over another pulley and connects to the lower arm of the pedal by a long rod.

Gasoline Gauge for Fords.

The Retlaw Manufacturing Company, Detroit, Mich., is marketing a gasoline gauge which is designed to show the amount of fuel in the Ford gasoline tank at all times. The gauge registers in gallons. Installation may be readily effective without the use of tools, the gauge being simply inserted in place of the filler cap.

A RACY STORY.

Resta wins at Indianapolis, creeping along at 83.26 miles per hour.

Resta wins at Chicago, driving 97.58 miles per hour.

Window Display.

An aid to more business is being furnished by the C. A. Shaler Company, Waupun, Wis. This aid, or "Silent

Salesman" as it is termed, consists of a metal background, lithographed in colors to show a representation of an au-



tomobile tire upon which a regular stock vulcanizer is clamped, exactly as if in operation. The display stand is furnished free to all dealers carrying the Shaler line.

NEW SAFETY FIRST LAWS.

New York.—At a meeting held recently before the General Welfare Committee of the Board of Aldermen, four ordinances in the interests of safety were proposed by the Safety First Society of New York. The proposed ordinances introduced were:

To guard unprotected side chains on motor vehicles.

To prevent trespassing upon or hitching on motor vehicles and wagons.

To safeguard properly motor vehicles when left unattended in the streets.

To eliminate the glare of automobile headlights.

E. V. A. MEETING.

A further discussion of "Greater Garage Service" was the feature of the meeting of the E. V. A. meeting of June 6.

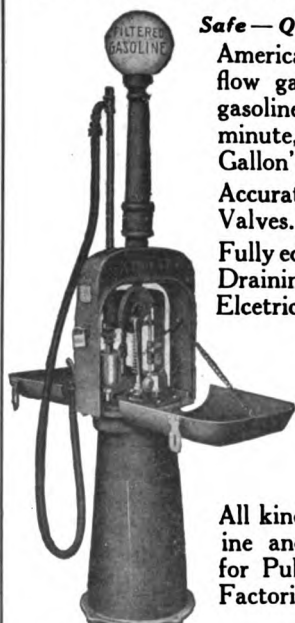
President Foster briefly outlined the history of the subject.

Expression of opinion by garage operators, battery men and car dealers developed considerable information of value to those who are taking an active interest in this work.

This discussion will be continued when the big meeting is held June 27.

June 27, it should be remembered, is the date on which the annual election of officers of the Chicago Section of the E. V. A. will be held.

American Gasoline Filling Outfits



Double-Acting Curb Pump (Patented)

Safe—Quick—Accurate—Economical
American Double-acting. Continuous flow gallon measuring Pump delivers gasoline at the rate of 14 gallons per minute, which is as fast as most "Five Gallon" Pumps and costs much less. Accurate Measurement. ACCESSIBLE Valves.

Fully equipped with Filter, Meter, Hose Draining Valve. With or without Electric Light Fixture.

Storage Tanks, any capacity desired.

Portable Wheel Tanks
With Double-Acting Pump
The Best Made

All kinds of Storage Outfits for Gasoline and Oils, Paints, Varnishes, etc., for Public or Private Garages, Stores, Factories, Railroads, etc.

Write for Bulletins, giving complete information, prices, etc.

The American Oil Pump & Tank Co.
CINCINNATI, OHIO

Money Making Machines for Every Shop

For reboring old worn and scored Ford Cylinders. Enables the small shop to rebore cylinders as well as the largest shops with expensive machinery.

Makes the Ford Motor like new. Reboring Ford Cylinders is a profitable business in any section.

The Davis Milling Attachment and Compound Table

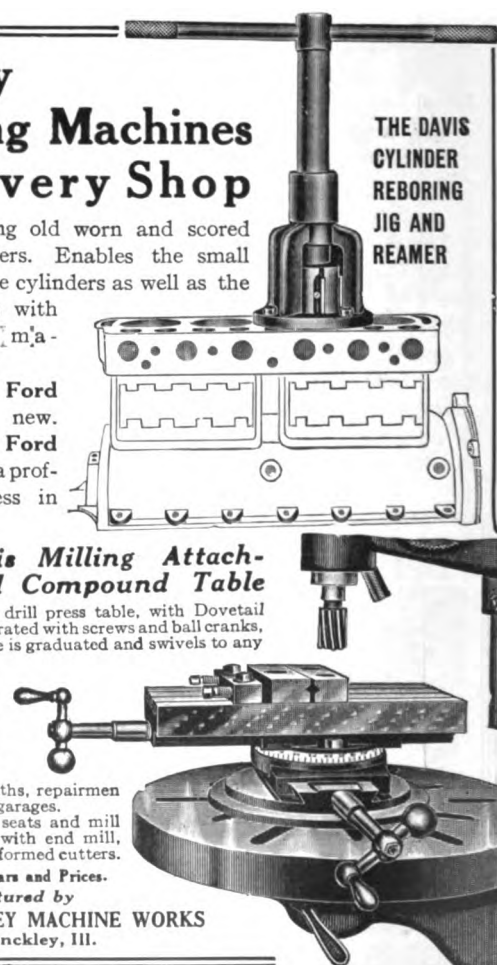
Clamps to any drill press table, with Dovetail Cross Slides, operated with screws and ball cranks, by hand. Saddle is graduated and swivels to any angle. Table is slotted for clamping down work, chuck or vise.

Especially adapted for small shops such as blacksmiths, repairmen and automobile garages.

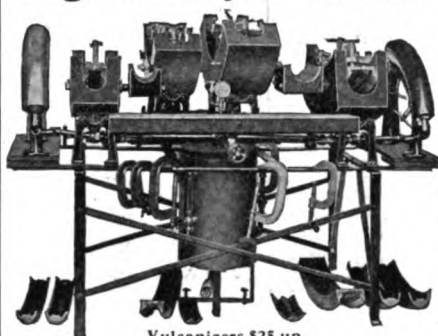
It will cut key seats and mill cams. For use with end mill, fishtail cutter or formed cutters.

Write for Circulars and Prices.

Manufactured by
THE HINCKLEY MACHINE WORKS
Hinckley, Ill.



THE DAVIS CYLINDER REBORING JIG AND REAMER

Big Money Double Treading

Lots of Work. Vulcanized Double Treads wear better, look better. This Vanderpool Vulcanizer does double treading and repairs all size case and tubes from 3 to 5-inch.

Vulcanizers \$25 up.

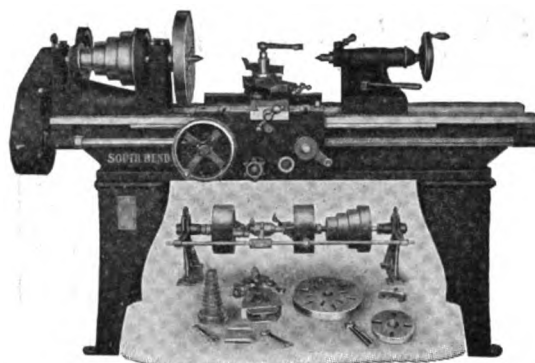
VANDERPOOL CO., Springfield, Ohio
and 1044 S. Main Street, Los Angeles, Cal.

KENNEDY Auto Storage Covers

furnish efficient protection for cars in dead storage. They are made of strong, heavy paper, properly reinforced, and in standard sizes to fit any car.

Made only by

The Kennedy Car Liner & Bag Co.
SHELBYVILLE, IND.

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Regular Equipment, as Illustrated Under Lathe, is included in Price.

The practical Lathe for the Machine and Repair Shop.

13-Inch Lathe, Complete,	\$185.00
14 " " "	209.00
15 " " "	230.00
16 " " "	294.00
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Straight and Gap Bed Lathes

Send for free catalog giving prices on the entire line.

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CONTAINS OVER 100 ILLUSTRATIONS AND 300 SHOP KINKS
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Accountants—Auditors—Systematizers

We are making a specialty of Garage Accounting Systems. We are prepared to make audits, to undertake investigations to prepare statements, to devise and install the kind of accounting system you require.

Our Terms Are Reasonable

We can maintain books at a cost to you of \$10 to \$25 per month. All dealings held in strictest confidence by capable and trustworthy, expert accountants.

Investigate, then let us quote you prices.

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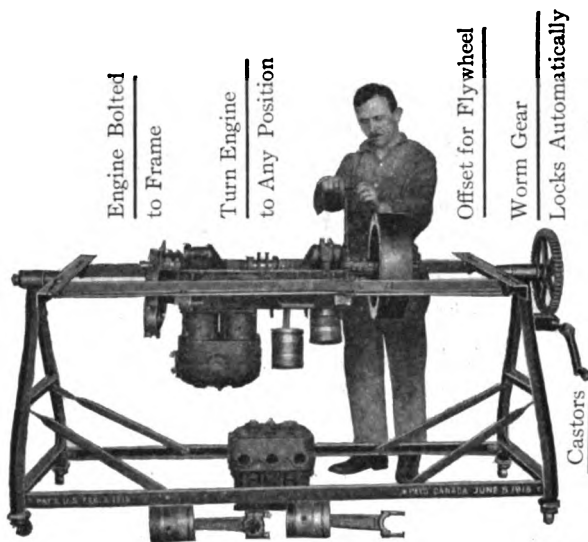
(Not Inc.)

608 So. Dearborn St.

Room 372

Chicago, Illinois

The New Dolder



The New Dolder is especially designed for Ford motors and all motors with wider flywheel than crank case support. Will hold motors up to 1,000 lbs. allowing them to be tested on the New Dolder yet can be easily moved about by one man.

We very much wish to impress upon your mind, this fact: The New Dolder Auto Engine Stand, will save you 50 per cent of the time you are forced to consume in overhauling a motor, what does this mean to you?

How much would this increase your service? Do you think increased efficiency means more business for you? If it does will it not increase your profits? Can you, not afford to expend, so small a portion, of your profits, to install a

NEW DOLDER

GENERAL DIMENSIONS

Length over all, 7 feet
Width at base, 2 feet 6 inches.
Length engine space, 5 feet 6 inches.
Width engine space, 2 feet 8 inches.
Height to top of frame, 3 feet.

Shipped knocked down.
Shipping weight, 250 lbs.

Net Price, \$31.50, f.o.b. Earlville

Dolder Manufacturing Co.

Sole Distributors
EARLVILLE, ILL.

Pondelick Bros.

Will Pay

\$100

if they fail to duplicate any part of any make of automobile or truck, foreign or domestic, submitted to them. That sum will be paid to the person sending the order.

Parts of any machine can be duplicated in one to three days' notice. All welding is done

at their risk. Do not compare this work or welding with that of others. If you have a broken part or parts that others cannot weld or repair, send them to Pondelicks. They increase the durability of many parts — even where the manufacturers fail.



Supply your customers with "Pondelick's" anti-leak piston rings, and you insure them against engine trouble.

They have the largest and best equipped plants in the United States for the repair or reproduction of automobile parts.

Cylinder regrinding, new piston, special casting, heat treated, Pondelick's self-adjusting anti-leak piston rings, new wrist pin, hardened and ground, bushing, made of genuine bronze, including fitting and assembling of connecting rod to piston for \$15.00.

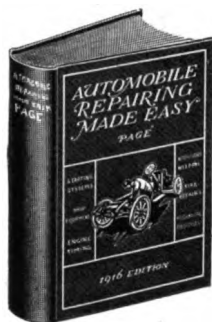
Reputation, not competition, determines our policies. Visit our plants and be convinced. Ask anywhere or anybody about our work.

General Factory, 5100 to 5112 West 16th St.
Main Office, Leavitt St. and Jackson Blvd.

Pondelick Bros., Chicago, Ill.

JUST PUBLISHED

and you need it—the most frequently needed and by far the most useful book on automobiles ever written.



Automobile Repairing Made Easy

By Victor W. Page, M. E., member of the society of Automobile Engineers, Author of the "Modern Gasoline Automobile," etc.

Here are one thousand and fifty-six pages of valuable information, one thousand specially made engravings on five hundred plates, including ten folding plates.

This book is a comprehensive, practical exposition of every phase of modern automobile repairing practice.

The only book of its kind, and it fills the bill.

You will find it outlines every process incidental to motor car restoration. A very definite and accurate idea of plans for workshop construction, suggestions for equipment, the power needed and the machinery and tools necessary to carry on the business successfully. It tells how to overhaul and repair all parts of all automobiles.

This book also contains special instructions on electric starting, lighting and ignition systems; tire repairing and rebuilding; autogenous welding, brazing and soldering; heat treatment of steel; latest timing practice; eight and twelve cylinder motors.

It is a reliable guide to mechanical efficiency for all repair men. You will never get stuck on a job if you have this book. A complete index makes for easy reference.

SPECIAL—Readers of Garage Efficiency are given first chance at this book of books. The Price is \$3—net. Shipment will be made by express, charges collect—or—send us \$4 and we will send prepaid and include a year's subscription to Garage Efficiency.

Send that order today while the impulse is warm.

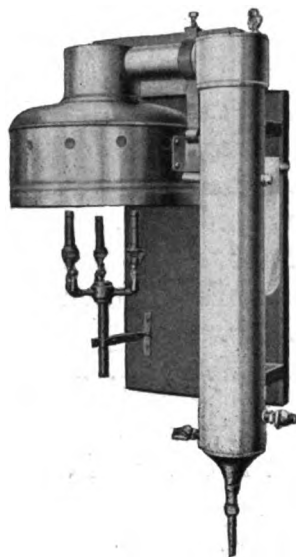
BOOK DEPARTMENT

THE GARAGE PRESS

608 South Dearborn Street

CHICAGO, ILLINOIS

BATTERY EFFICIENCY DEMANDS PURE WATER



*Use Only Pure
Distilled Water*
**IN YOUR STORAGE
BATTERIES**

Pure Water Helps
Your Batteries

Impure Water
Injures Them.

The cost of producing one gallon of distilled water varies from 1-10c to 2c, according to the kind and price of fuel used.

Produce distilled water for your own needs, also for sale at a splendid profit to garages, gas and electric car owners, druggists, hospitals, physicians, chemists, and other users of distilled water.

Your profit from the sale of distilled water will quickly pay for the Still.

CAPACITIES:

1/2 to 15 gallons per hour

Operated by Gas, Gasoline, Kerosene or Steam
Our kerosene and gasoline burners are powerful, wickless, noiseless and odorless.

The Still is entirely automatic in its operation, and as simple to operate as a teakettle. No parts to wear out. It will last for years and give perfect service.

No. 1 Gas Operated capacity 1/2 gallon distilled water per hour
No. 2 Gas Operated capacity 1 gallon distilled water per hour
No. 3 Gas Operated capacity 2 gallons distilled water per hour

Prices on These and Other Types and Sizes
on Application

THE IMPROVED "ROCHLITZ" AUTOMATIC WATER STILL

Is Recommended and used by the following storage battery manufacturers:

EDISON STORAGE BATTERY CO.
GOULD STORAGE BATTERY CO.
WILLARD STORAGE BATTERY CO.
THE ELECTRIC STORAGE BATTERY CO.
THE REX STORAGE BATTERY CO.
U. S. LIGHT & HEAT CORPORATION "U.S.L."

**Be Sure About Your Drinking Water
Don't Guess!**

PURE WATER PROLONGS YOUR LIFE

MANUFACTURED BY

W. M. LALOR

Manhattan Bldg.

Chicago, Ill., U. S. A.

Modern Garage Service

WHETHER it be an electric or gas garage nowadays, many things are expected by customers that were not thought of a few years ago. Garage operators have been compelled to assume obligations and liabilities in the handling and delivering of cars to customers they never dreamed of. For instance, hikers were only for electrics just a short while back, now gas garages use them to hold their trade. We know hikers have accidents causing sometimes severe losses to the garage owner.

Our ILLINOIS GARAGE OWNERS' POLICY completely covers the needs of the garage owner, even with a livery in connection. It is but one policy but it covers NINE hazards.

Write us for further information.

AMERICAN AUTOMOBILE INSURANCE COMPANY

HARRY M. McCONNELL, General Agent

516 National Life Bldg.

Chicago, Illinois

HERE'S A BOOK YOU NEED

A complete Ford Instruction is also added.

Read the subjects treated below and bear in mind each and every subject is fully treated in a simplified manner with clear illustrations.

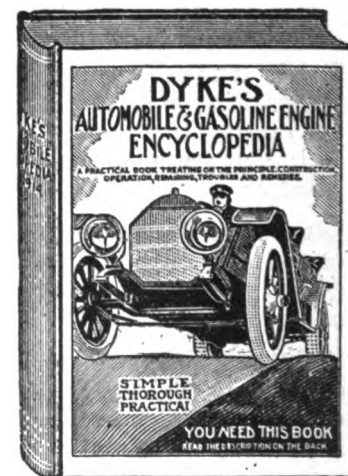
Step by step the book takes you through construction engines; 4, 6, 8 and 12 cylinder, carburetion, valve timing, ignition timing, and all up-to-date electric systems—repairing, adjusting, etc. The repair subject is very complete and extremely useful. Hundreds of illustrations on this subject alone.

This book is compiled by A. L. Dyke, the man who invented the first auto supply business, manufactured the first valve feed carburetor, and published the first practical book on automobiles in America.

The book is endorsed by Elwood Haynes, Charles Duryea, Lord Montagu (founder of boulevards in London), Barney Oldfield and other notables. It is read by the faculty of five Automobile Schools.

READ THE BRIEF TABLE OF CONTENTS BELOW

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| (9)—Valve Timing. | (19)—The Modern Battery and Coil Ignition. | (28)—Leading Electric Starting and Generating Systems. | (37)—Accessories. | (48)—Tractors. |
| (10)—Firing Order. | | | (38)—Insurance, Laws, License. | (49)—Brief Treatise on Other Internal Combustion Types of Engines. |
| | | | (39)—The Automobile Salesman. | (48a)—Ford Instruction. |



Free Supplement — with each encyclopedia (after Feb. 15, 1916)—144 pages, part in two colors, treating on the principle, construction, care and adjustment of Packard Twin Six, King Eight, Willys-Knight, Maxwell and Ford.

Price \$3.00 (Add 25 cents if wanted prepaid)

SPECIAL This book, prepaid, and one year's subscription will be given for \$3.50.

If you are already a subscriber, then give the subscription to a friend and get the book.

Address Book Department, Garage Press, Transportation Building, 608 So. Dearborn Street, Chicago, Ill.



1/2" Extension
FORD, OVERLAND, REO.
3-X Spark Plugs make Ford cars 100 per cent efficient. Strict economy impels your customers to demand 3-X with the guarantee that goes with them.



1/2" SAE
Specials for certain types of motors will be supplied in any size, thread or extension and specifically adapted to do the work for which it is designed



1/2" Std.
More power with less consumption of gas, greater flexibility, easier starting, closer timing, a quicker "pickup" are some of the advantages 3-X assure



Metric
If ever in doubt as to the exact type required send name and model of the car to be equipped and the size and type adapted to that motor will be furnished.

Oh! Say, Mr. Wisenheimer!

Are you sure you know all there is to know about Spark Plugs?

If you do, then you know why the 3-X Spark Plug gives more satisfaction to the car owner than any other spark plug made in America.

But do you know this? If you do not, are you willing to be shown?

We guarantee 3-X Spark Plugs to give absolute satisfaction where heat is severe and oil conditions excessive. It will run perfectly when no other plug will withstand the strain. It positively will not fuse, break down nor foul no matter how trying the conditions. Shell, center electrode porcelain and gland are all of extra weight to insure the greatest durability. We have produced in this plug one that will not only give satisfaction under normal conditions but will stand more hard usage than any plug made and perform its functions perfectly.

3-X Spark Plugs are used in German Army motor cars. Every one concedes German efficiency. Germany demands the best and gets it.

3-X Spark Plugs are not the cheapest but they are the best and therefore cost less in the long run. A Good Article always is worth a fair price and while the cost of 3-X plugs is not high, we do not compete with spark plugs of average quality and price.

3-X Spark Plugs retail at \$1.00 and no other plug wears better or pleases more. There is a good, healthy profit in handling these plugs, Mr. Dealer, and they give you that comforting feeling that you have made a satisfied customer of every purchaser.

Don't put it off—Write TODAY for prices and free sample. You'll buy.

3-X SPARK PLUG COMPANY

2129 Michigan Avenue

Chicago, Illinois



Our many years of Carburetor experience and our famous staff of Engineers are at your service. Write us any time for advice—don't *you* try to shoulder your Carburetor troubles alone—we have some vital new information which you want.

Here's a remarkable fact you've probably never discovered: Your engine might be hitting on all cylinders perfectly—yet you are wasting fuel. How? Why?

WRITE us now for revelations on gas economy—let us tell you of a certain remarkable way to increase your mileage—whether your car is new or old.

This information will not obligate you in any way. We're showing thousands of car owners how to get more mileage—more power, speed, flexibility and acceleration. A postal will do—be sure to state make of car, year and model.

New STROMBERG Did it!

STROMBERG MOTOR DEVICES CO., Dept. N., 64 E. 25th ST., CHICAGO

Garage Efficiency

CONVENTION
NUMBER

VOL. VI

CHICAGO, FEBRUARY, 1916

INDEXED

No. 2

THE PRESIDENT'S MESSAGE TORA X

Addressed to the GARAGE OWNER, RETAIL DEALER and the AUTOMOBILE ACCESSORY JOBBER

To amalgamate the somewhat divergent, yet never really conflicting interests of garage owner, local auto dealer and *bona fide* auto accessory man, there was formed recently in Chicago the National Trade Association.

This is not a movement of preparedness to fight any real or fancied common foe—it is not pledged to wage any war save that of self-helpfulness, the elimination of economic waste.

The public need have no uneasiness lest this association be the forerunner of an offensive and defensive campaign for higher prices. By means of a coördination of effort every member should be able to increase his business and his profits, and as a consequence to render to the public more efficient service for the present rates of charge or the same service at reduced rates.

Who is more interested in seeing that an automobile is properly garaged and repaired at a fair cost than the local dealer? Who is more interested in encouraging sales of automobiles, locally, than the garage owner? The tendency of the public to purchase and operate automobiles is in direct proportion of the fairness of the treatment afforded by local dealer and garage men.

Despite the fact that, outside the larger cities where direct factory branches and exclusive sales rooms predominate, the garage man is, or should be, the dealer, and the dealer should operate his own garage (service station), the two branches have proceeded along separate, though parallel, lines. Each branch of the industry has organized separately, but it remained for the present movement to supply the standard around which all can rally.

The medium employed for this purpose was the Associated Garages of America, which numbered among its members garage owners and dealers in a dozen states.

By an enlargement of its objects and scope provision has been made for the admission of any state or local association, composed of garage owners and retail automobile and accessory dealers.

One of the chief aims of the officials of the National Automobile Trade Association is to develop the *bona fide* accessory dealer. If the owner of automobiles can be convinced that automobile sundries offered as "leaders" by hardware dealers and department stores do not constitute legitimate merchandising and,

further, that the "bargains" in auto supplies are often inferior and sometimes injure a machine, a service of incalculable value will be rendered to all concerned.

This association assumes the position that until garages and local dealers can command the patronage which is legitimately theirs, they will not be justified in carrying complete lines, but with increased sales and correspondingly increased purchasing power they will be able to effect a saving worth while to the ultimate consumer.

By means of association endeavor we hope to establish the garage business in the confidence of the public which it deserves, as an institution entrusted with the safe keeping of millions upon millions of dollars worth of property, and by this means we also hope to establish in every community a retail market where dependable cars can be bought with an assurance of dependable service, and, also, we confidently hope to assure to the tourist who happens to come to grief in any town or hamlet on any highway such standard accessories or supplies as he may require to complete his journey.

The sign of our association, which will be displayed on the front of each members' garage, will soon come to mean an invitation to trade with an assurance of protection and a "square deal."

As president of this association, I feel the limitations which are imposed on personal endeavor. I realize the enormity of the task imposed upon me and my fellow officers and hence I call upon all who share our view to join in the work. Applications for general membership will be welcomed from individual dealers and garage men—affiliated memberships of existing associations—either state or local—are solicited and the association will be glad to assist in the formation of associations in new territory.

The general offices of the association in charge of R. A. Wilson, Secretary, have been located in the Continental and Commercial Bank Building (Room 1938, Chicago, Ill.). Inquiries may also be addressed to J. Freidman, Dyersville, Iowa; W. B. Taylor, Rockford, Ill.; L. C. Steers, Detroit, Mich.; K. R. Vaught, Indianapolis, Ind.; E. T. Jones, Akron, Ohio, directors, or to the undersigned.

ROBERT BLAND,
President National Automobile Trade Association,
Evanston, Ill., February 12, 1916.



ROBERT BLAND, EVANSTON, ILL.
President National Automobile Trade Association.

10% increase

ADVANCE in TIRE PRICES

Owing to the largely increased cost of raw materials, we are compelled to advance our prices 10% on the standard sizes of Goodrich Automobile Tires and Tubes, also on Goodrich Wireless Truck Tires, Goodrich Motorcycle Tires and Tubes and Goodrich Automobile Rubber Accessories effective at once.

Occasional or odd sizes of Goodrich Automobile Tires and Tubes advanced and be shown on our new list.

Despite the advances made by competitors, we have held to a conservative policy to maintain "Listed" Prices for

THE B. F. GOODRICH
AKRON, OHIO
Chicago Branch: 1925 Market

PRICES on pneumatic automobile tires, all types of solid and cushion motor truck tires and pneumatic motorcycle tires are advanced 10% on standard sizes.

Wise Accessory Dealers

Will cash in on this increase in tire prices by selling Shaler Vulcanizers to their customers. More Shaler Vulcanizers will be sold, than ever before, because more motorists will welcome and want this great tire repairing device to offset this raise in tire prices, and keep their tires in perfect condition and treble their mileage.

SHALER Vulcanizer

Hundreds of accessory dealers and garages have found Shaler Tourist Vulcanizers to be one of their best selling lines. Don't overlook the possibilities to build up a big accessory trade by selling the Shaler Tourist Vulcanizer and greatly increase your profits.

Don't think that if you sell a small vulcanizer, you will lose repair business. A small vulcanizer is used for emergencies—instead of patch. When you sell a Shaler Vulcanizer you not only make many times the profit you do on the sale of a dozen patches, but you give your customer something that will make a perfect repair and thus you gain his confidence.

This is the Shaler Vul-Kit

A Tourist model Vulcanizer that trebles mileage by repairing casing cuts before they develop into blow-outs. It also mends tubes.

Retails for \$3.50

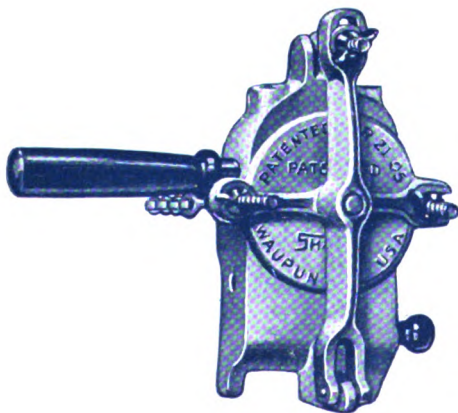
Other Shaler Tourists' Models at \$12.50, \$2.75, \$2.00.

Write Today

For complete details—send for 1916 Catalog and interesting dealer proposition. At your Jobber's
C. A. SHALER COMPANY, 352 Fourth Street, Waupun, Wis.

Canadian Distributors—John Millen & Son, Limited—
Toronto, Winnipeg, Montreal, Vancouver

Largest Manufacturers of Vulcanizers in the World



Garage Efficiency

VOL. VI

CHICAGO, MARCH, 1916

No. 3

THINK

Thinking is the greatest sport in the world.

It is recreation, amusement, entertainment, all rolled into one, and all provided without cost to the man who will develop the habit of thinking.

Think of what you are doing, of what you will do next.

Whether you own the business, are manager of it, a clerk, a mechanic, a hiker, or a washer, put your best effort into the task; master your part of the work.

Look at all sides of every question that comes up.

Determine what it means to you. Then turn it over and look at it from the viewpoint of all others in any manner concerned.

Don't carry your business with you to worry about it—worrying is not thinking—but carry it along to think about it.

Men of action and men of value do their best work when they command the opportunity to "figger" a thing out.

Such men work during their waking hours.

They are not dreamers.

There is considerable difference between the thinker and the dreamer.

The thinker works his mind, the mind works the dreamer. The results are radically different.

In the case of the thinker real progress is being made. Values are being weighed and contrasted. An idea of the relative importance of things is being secured.

Worth-while things are being separated from the useless.

Thinking is not drudgery.

It is a stimulating, exhilarating occupation.

You must begin at some point and continue to some other point, you must start and get somewhere, if you really think.

There is nothing spasmodic or irrelevant about thinking.

DOES THINKING PAY?

Ask the man who has accomplished anything worthy of the name of accomplishment.

He will tell you mental creation must precede material creation; that architecture, sculpture, literature first exist mentally and then are painstakingly put together in material form.

It will pay you to think, whether you are hiking, washing cars, making repairs, selling cars, managing the shop or whether you own the business.

Don't end up with a mere pretense, don't stop with thinking you are thinking.

You Can Sell Air-In-Al At a Great Big Profit

Every car owner in GARAGE EFFICIENCY territory will have our convincing literature before May 1.

Every car owner will understand that the use of Air-In-Al will prevent trouble and annoyance.

Every car owner will know that Air-In-Al does not do away with the necessity for vulcanizing tires but postpones the work until a convenient season.

Every car owner will be told that we do not solicit direct sales, and that **Air-In-Al may be secured from YOU.**

YOUR PROFIT IS LARGE, even though you buy only one case, which costs very little. You not only make a profit on the Air-In-Al you sell but you make such friends of your customers that they would be ingrates if they did not bring their cars in for repairs, especially tire work, and did not buy all supplies from you.

Air-In-Al is not a fake.

It makes tires puncture-proof.

Punctures are instantly and permanently sealed.

The preparation never freezes.

Heat does not affect it.

It always is in a semi-liquid state.

It does not injure rubber.

It is not sticky or greasy.

It can be poured out of the inner tube as easily as it is poured in.

If your customer is not satisfied, return his money and we will reimburse you.

Special Offer—Put in a case. Make a reasonable effort to sell the Air-In-Al. If you don't sell it, return the stock and get your money back. Can a buyer ask more? This offer good until April 15.

(Mr. Granberry will make good on this guarantee in the opinion of GARAGE EFFICIENCY.)

Fill in and Mail this Coupon.

S. W. GRANBERRY,
8 S. Dearborn Street, Chicago, Ill.

Please send me price information regarding one case of Air-In-Al on terms mentioned in above offer.

Name.....

Street No.....

City.....State.....

S. W. GRANBERRY,

8 S. Dearborn Street,

Chicago, Illinois.

Garage Efficiency

VOL. VI

CHICAGO, APRIL, 1916

INDEXED

No. 4

Empire Tires

RED

TORA
X

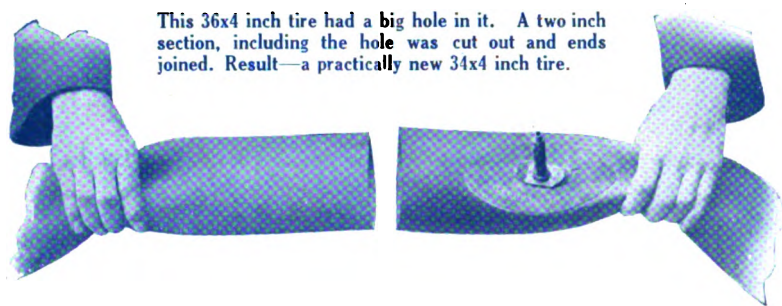
15
20
13
11
16



The Quality Tire

Sold on a 5,000 Mile Guarantee

TOL
F



This 36x4 inch tire had a big hole in it. A two inch section, including the hole was cut out and ends joined. Result—a practically new 34x4 inch tire.



Above tire after being repaired with 15c worth of TIRE-DOH.

Anyone Can Make ANY Tire Repair with



That's why it's a good article for you to handle.

Over half a million motorists know, use and demand it. Thousands of dollars are being spent to make it still better known and more widely used.

Thousands of sales will be made this year right in your locality. You might just as well get your share of this business. You **can** get it if you stock TIRE-DOH. The merit of TIRE-DOH and TIRE-DOH advertising will move it.

The profit per sale is attractive and the satisfaction users get from TIRE-DOH means friends and repeat sales for dealers who recommend it.



In Your Own Garage

TIRE-DOH will save you time and money when you don't want to get up steam for vulcanizing. It repairs smallest punctures and biggest inner tube tears — keeps cuts and holes in casings from becoming sand blisters and blow-outs.

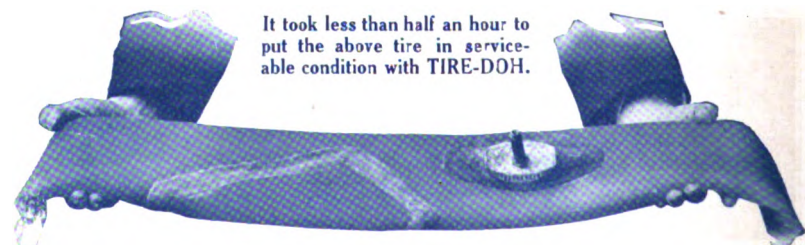
Repairs any article of rubber and makes the repaired place stronger than ever.

If you can't get it from your jobber, write us.

ATLAS AUTO SUPPLY CO.
674 W. Austin Ave. CHICAGO



Here is an actual tear repaired with TIRE-DOH.



It took less than half an hour to put the above tire in serviceable condition with TIRE-DOH.

Garage Efficiency

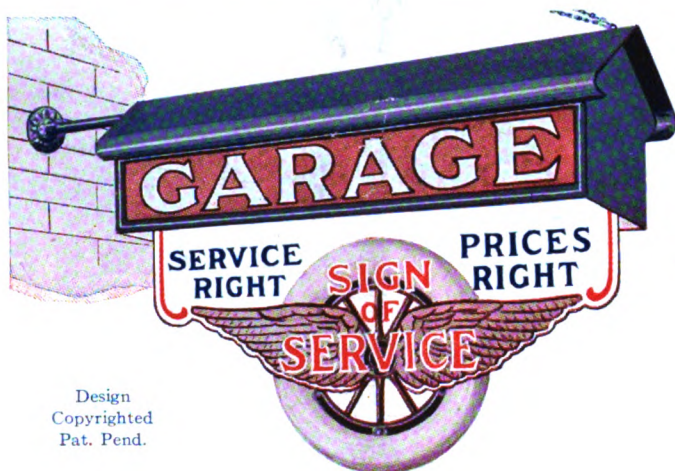
VOL. VI

CHICAGO, MAY, 1916

INDEXED

TORA

No. 5



Design
Copyrighted
Pat. Pend.

First Come, First Served!

ONLY ONE GARAGE IN A CITY OF 50,000 OR LESS can use this INDIVIDUAL ELECTRIC SIGN as a part of our COMPLETE ADVERTISING SERVICE.

We Want the Best Garage in Every City

OUR PROPOSITION:—We furnish this exclusive designed electric sign complete, together with 500 blotters and 500 business cards, beautifully printed in three colors, featuring this exclusive design—"The Sign of Service," all for \$52.50.

You Get the Complete Service, Sign, Cards, Blotters, for the Price of the Sign Alone, so That the Blotters and Cards are ABSOLUTELY FREE.

THIS ELECTRIC SIGN is beautiful in the day time—a brilliant display at night and economical to operate—burns three lamps on each side. No light is wasted. It's all directed downward over the advertising matter to light up the entrance to your Garage. Length 52". "Garage" transparency 6" white letters, red background. Galvanized metal used throughout. Outside painted green, inside white.
Good for a life time. This is the famous Sign of Service for N. A. T. A. members.

THE 500 FREE BUSINESS CARDS are high class art work beautifully printed in three colors, illustrating this "Sign of Service," which now becomes your *exclusive trade mark*. Blotters bear your name and address. They are just the thing to distribute among your friends and pass out to transients. If you are "from Missouri" write for free sample. This is the most effective business card you have ever seen. And remember the cards are yours *exclusively and free*.

THE 500 FREE BLOTTERS are also high class art work, three colors, with your name and address. They are of handy check book size, just the thing to enclose with your bills to regular customers.

You will make a big hit by giving them away and they will be used.

They carry good advertising copy and will keep your "Sign of Service" in the minds of your trade.

Our guarantee is SATISFACTION OR MONEY BACK. No "ifs", "ands" or "buts" about this guarantee. When you uncrate the sign, if it isn't the finest sign you ever saw, don't hang it. Put it right back in its crate and return it to us, charges collect.

You take no chances. Don't pay for the sign if you don't like it. Our special offer is \$52.50 for this complete advertising service, as covered in the coupon order blank.

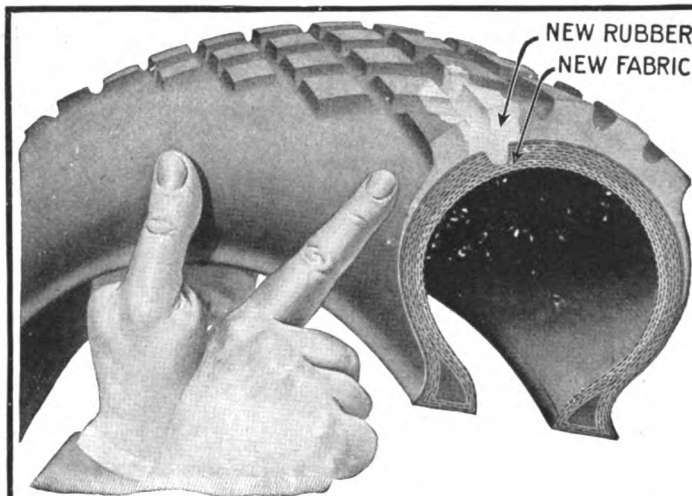
Remember, First Come, First Served! We Can't Discriminate

Be the first in your city to act today. Make your Garage business different with this "Sign of Service."

These signs are manufactured under patents pending and sold exclusively by

The Electric Service Co. of America
515 S. Dearborn St., Chicago

TEAR OFF COUPON ORDER BLANK ON THIS LINE
COUPON ORDER BLANK
Electric Service Co. of America, 515 S. Dearborn St., Chicago.
In accordance with your Garage Efficiency special offer, please book our order for your exclusive advertising service—"The Sign of Service"—the electric sign with 500 cards and 500 blotters, bearing our name and address. Enclosed find \$17.50 to pay for the cards and blotters, balance \$35 C. O. D. for sign, subject to our approval.
Name
Address
City State
Ship via



Better Repairs Bigger Profits

The exceptional strength of this repair is due to the efficient placing of the reinforcement. Note economy of material.

The perfect repair for both non-skid and plain tread casings has been found at last in the Shaler Wrapped Tread Method.

This system simplifies casing repairs, making them much easier to complete, produces a stronger job and requires less material than the complicated plan of putting in sections.

The Shaler Vulcanizer—embodying the Wrapped Tread Method of Tire Repairing—has been officially adopted by leading tire and car makers and by the U. S. and other governments because of its practical principle, ease of operation and automatic temperature regulation and control.

SHALER

Shop Vulcanizers

Any Wide-Awake Garage Can Double Its Revenue Repairing Tires

The advance in tire prices the past few months has resulted in a big increase for tire repairs.

With a Shaler Vulcanizing outfit you can get the big profits on the tire repairing business your customers are forced to take somewhere. When you

use the efficient Shaler Wrapped Tread Method you can make better repairs at less cost than your competitor who has an old style outfit. Either you can make more profit or do repairs so cheaply as to get practically all the work in your community—and lots of outside work, too.

Write for Free Catalog

Which shows the only complete line of tire vulcanizers in the world, from a \$1.75 kit for the motorist to carry in his tool-box to complete shop Vulcanizing Outfits that will turn out two hundred tubes and a dozen casings daily.

C. A. Shaler Co., 355 Fourth Street, Waupun, Wis.

Canadian Distributors—John Millen & Son, Ltd.
Toronto, Winnipeg, Montreal,
Vancouver

**Largest Makers of Vulcanizers
in the World**

\$6000

Steam or
Electric

Subject to trade discount.

Mail this Coupon

**C. A. Shaler Co.,
355 Fourth Street, Waupun, Wis.**

Please send me full particulars about Shaler Vulcanizing Plant, low discount price and book, "Common Sense About Tire Repairs."

Name.....
Address.....

Please Mention GARAGE EFFICIENCY, when Writing to Advertisers.

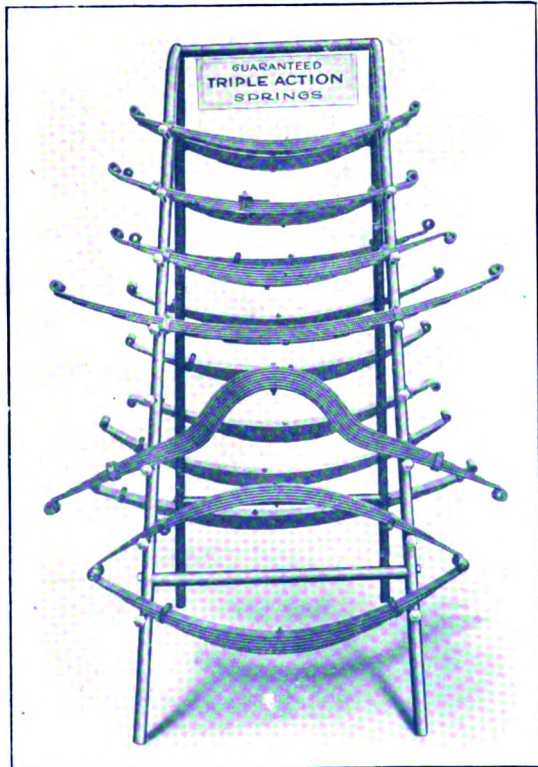
Garage Efficiency

VOL. VI

CHICAGO, JUNE, 1916

No. 6

There's Big Money In The Spring Business



Spring replacements are highly profitable—there's real money in it. Are you getting these nice profits—if not, why not? We furnish you Triple Action Guaranteed Springs for any make of car, no matter how long the manufacturer has been out of business—shipments same day. Triple Action Service gets the business and keeps the business for you.

FREE!

This handsome display rack with a small assortment of springs for which you will have frequent demands. This rack will sell your springs for you. Our proposition to the garageman is a winner—write for it today.

Triple Action Spring Co.

O. G. TEMME, President

77-79-81 East 28th Street, Chicago



This metal display stand for your counter or window places a sample vulcanizer in full view of every customer in a novel way that is sure to attract and hold attention. It shows a regular stock size Vul-Kit or Ford-Kit apparently mending a tread cut in a fully inflated tire.

Put This on Your Counter or in Your Window
It Will Make Many Sales For You

**Complete
Stand
FREE
to Dealers.**

Ask for it today

Here is a splendid way to increase your sales and profits on this popular accessory. The Shaler Tire Repair Kit is needed by every motorist to carry in his tool box to eliminate tire trouble on the road and double his mileage. And the motorist must buy it from his dealer because no car comes equipped with a tire-saving device.

Put this attractive display stand on your counter or in your window and let your customers know that you handle this popular accessory. They will buy their own from you and send their friends to you also.

Complete Catalog Mailed on Request.

C. A. SHALER CO., 356 Fourth St., Waupun, Wis.
Oldest and Largest Vulcanizer Manufacturers

Save 75% on guaranteed 5000 mile tires

BEAR VULCO TIRES AT 1-4 THE REGULAR PRICES, have 12 plies of fabric between the inner tube and the road, are twice as thick as ordinary tires, and are guaranteed for 5,000 miles.

Some of the largest business houses in Chicago and New York are using our tires, and are not only saving money on the initial cost, but are saving money each day on the upkeep, because BEAR VULCO TIRES eliminate the expensive puncture, blow-out and other trouble common with the single thickness tire.



YOU CAN CONTROL THE TIRE BUSINESS IN YOUR TOWN. Everywhere there is a cry for low prices. Are you prepared to meet this demand? If not, the mail-order houses will take, in fact are taking, the business right out of your hands—but they are selling inferior tires. Here is your opportunity to get back the business which rightfully belongs to you, by selling a far superior tire, guaranteed for 5,000 miles, at even lower prices than are asked by the mail-order houses for poor quality tires. You can get all of the business in your community, by acting as agents for the BEAR VULCO TIRES.

WE PREPAY EXPRESS CHARGES

Send \$1.00 deposit for each tire ordered and we will send the tire, balance C. O. D. Or better yet, send in your certified check, money order or draft for the entire amount and we will ship tire prepaid. You not only save express charges this way, but also 25c for returning C. O. D. collection. We are able to do this, as it does away with all bookkeeping and the necessary money outlay for it.

Prices of Bear Vulco Tires, guaranteed for 5,000 miles; plain tread or non-skid:

28x3	\$5.50	34x3½	\$10.00	36x4	\$12.00	36x5	\$15.00
30x3	6.00	31x4	10.00	34x4½	12.75	37x5	15.75
30x3½	7.50	32x4	10.50	35x4½	13.00	39x5	18.00
31x3½	8.00	33x4	11.00	36x4½	13.50		
32x3½	9.00	34x4	11.25	37x4½	14.00		
33x3½	10.00	35x4	11.75	38x4½	15.00		

DON'T THROW AWAY YOUR OLD TIRES THEY ARE WORTH BIG MONEY

You may think them no good. Let us be the judge. Gather together all you have, and let us make them into good, guaranteed BEAR VULCO TIRES for ¼ the price of a new tire. WE RELINE ALL BEAR VULCO DOUBLE TREAD TIRES. Just send us your tires and we will send them back to you subject to your approval.

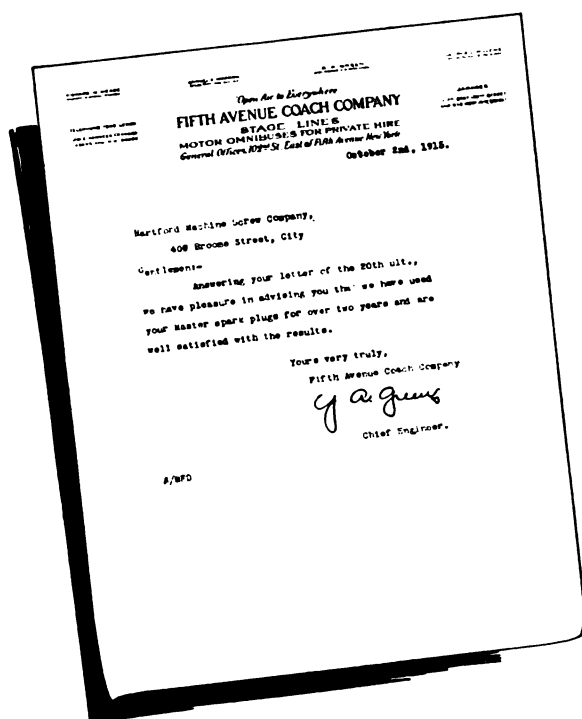
PRICES OF BEAR VULCO DOUBLE TREAD TIRES. We to furnish good tires to cover your old ones and guarantee same for 5,000 miles. Non-skid or plain tread:

28x3	\$3.75	32x3½	\$5.75	34x4	\$7.00	36x4½	\$8.50
30x3	4.00	34x3½	6.00	36x4	7.50	37x4½	9.00
30x3½	5.00	32x4	6.50	34x4½	8.00	36x5	9.75
31x3½	5.25	33x4	6.75	35x4½	8.25	37x5	10.25

When inner soles are necessary to be inserted in your old tires, small extra charge is 35 cents.

BEAR RUBBER TIRE CO.
1313 MICHIGAN AVE. CHICAGO, ILL.

SEND THIS COUPON TODAY
BEAR RUBBER TIRE CO., 1313 Michigan Ave., Chicago
Gentlemen—Enclosed please find \$_____ for which please send to me at once, prepaid _____ tires, sizes _____
Plain tread _____
Non-skid _____
Name _____ Address _____ City _____ State _____



**"We have used your
MASTER Spark Plugs
for Over Two Years
and are well satis-
fied with the results."**

The full letter from the Fifth Avenue Coach Company, New York, reproduced herewith, tells more convincingly than any words of ours the excellent service given by

MASTER Calorite Spark Plugs

under the most strenuous conditions.



MASTER
Calorite Spark Plug
Regular Length
\$1.00 Each, Retail

The Fifth Avenue Coaches must run on time—Uninterruptedly—constantly—hour after hour—day after day—with hundreds of stops and starts—**hot** motors—**heavy** loads and **steep** grades—They must have Spark Plugs which will stand severe service.

The Fifth Avenue Coach Company **uses Master Plugs exclusively.**
Master Calorite Spark Plugs are backed by this guarantee—

"We guarantee MASTER CALORITE SPARK PLUGS against defects of material or workmanship, and will replace, free of charge, any CALORITE insulators broken by heat which are returned to us transportation prepaid."

Positive protection to users is assured by this old established Company.
Six Styles—Half Inch Regular— $\frac{7}{8}$ " Regular—Metric—Model "F" for Fords and Reos— $\frac{7}{8}$ " Long—Half Inch Long.

At retail \$1.00 and \$1.25, depending upon the type.

Substantial discounts to the trade warrant the pushing of these plugs vigorously. Dealers and jobbers, write for our proposition.

MASTER CALORITE SPARK PLUGS

Made in the U. S. A.

Manufactured and Guaranteed by

THE HARTFORD MACHINE SCREW CO.
518 Capitol Avenue, HARTFORD, CONN.

**This book is under no circumstances to be
taken from the Building**

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form 410

